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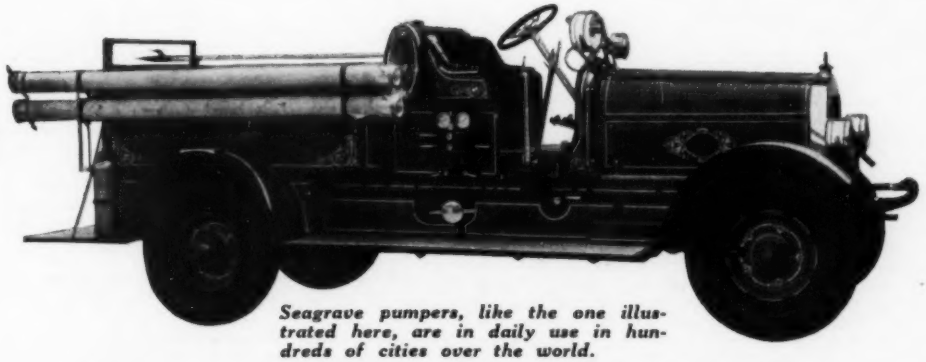

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FIRE ENGINEERING

A consolidation of FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

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¶ We are always delighted to hear from you!

The Publishers

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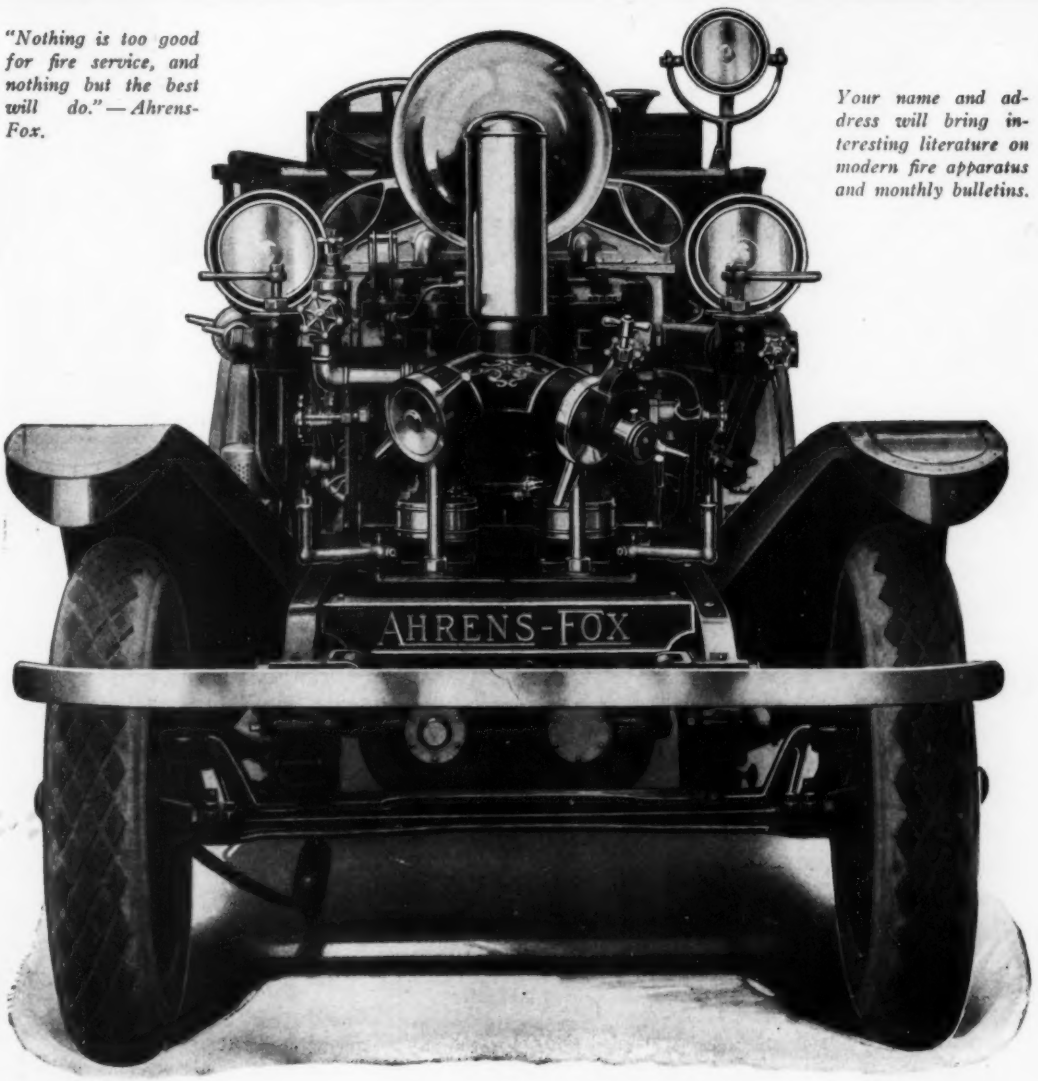

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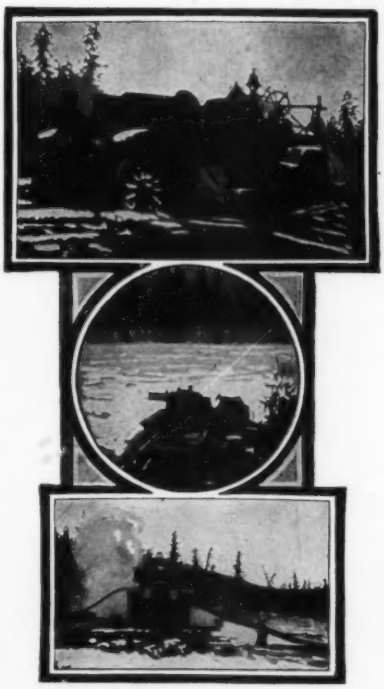

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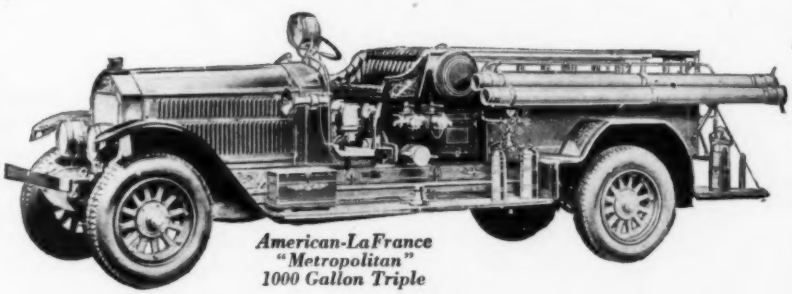
Pumping requirements rarely make it necessary for a fire department to place it's apparatus under such strain as this Type "12" was under, but in every American-LaFrance fire apparatus there is a pump and a motor of exactly the same kind that established this record.



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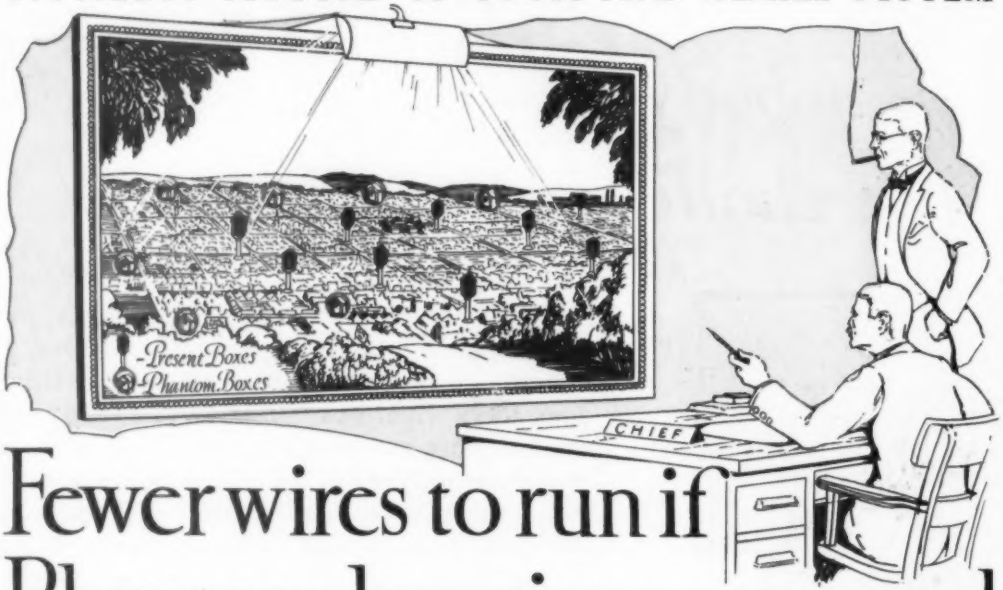

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(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX NOVEMBER 16, 1927 NUMBER 23

Evidence Saved, Firebug is Convicted

Sets Fire to Grocery Store Stock, After Saturating It and Building With Inflammable Oils—Firemen Checkmate Attempt

By GEORGE W. SMITH, Sergeant, Arson Squad, Fire Prevention Bureau, Detroit, Mich.

THE following account shows to what lengths an incendiary will go in an effort to insure the success of his nefarious efforts. It also emphasizes the value of photography in the collection of evidence against the arsonist:

An important arson case has just been closed in the city of Detroit, Mich., resulting in the conviction and

Fig. 1. Two-Story Frame Building in Detroit in Which Four Incendiary Fires Occurred Simultaneously

One of these fires was set in the basement, two on the first floor, among the stock of a grocery store, and the fourth in a vacant flat on second floor. Entire building and contents saturated with kerosene, gasoline and turpentine oils. Frame dwellings on either side would probably have been damaged, if fire had gotten beyond control or explosion occurred, as was evidently intended by incendiary.

punishment of the accused after a trial by jury. The following are the facts:

The Arson Plot Fails

About February 15 of this year, Nick Puglia, alias Bulia, 9645 Edgewood Avenue, Detroit, opened up a retail grocery store with a stock of Italian products at 9711 Knodell Street.

The evidence seemed to prove that this was done with the express purpose of defrauding the insurance companies by burning the building and stock, the latter being heavily overinsured.

On March 2, at 1:43 a. m., a fire occurred in this grocery store and upon arrival of the Fire Department, it was found that there were four separate fires in the building—one in the basement, two on the first floor in the grocery stock, and one in a vacant flat on the second floor. The entire building and grocery stock had been saturated with kerosene, gasoline and turpentine oils. If the fumes had exploded, as Puglia apparently intended they should, there would have been no evidence left for an arson case, but as frequently happens in a case of this kind, the Fire Department succeeded in extinguishing the four small fires before much damage was done.

Stock Heavily Overinsured

An inventory of the stock and fixtures showed the value to be approximately $1,200, which was covered by $5,000 fire insurance.

Thorough Preparations for Destruction

The preparations for the destruction of the building and its contents were carefully carried out and but for the prompt action of the Fire Department, in ventilating the structure at once on arrival, would probably have proved successful, as an explosion would have undoubtedly occurred. There is also little doubt but that, had such an explosion occurred, the two dwelling houses

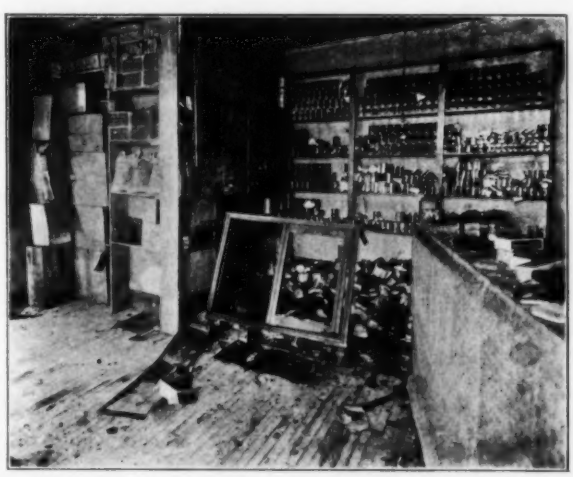


Fig. 2. Part of the Interior of Grocery Store in the Detroit Arson Case

In the center of picture, behind the remains of a small show case, is shown the results of one of the fires. About 75% of the stock, saturated with turpentine oil, is to be seen. Note the boxes of matches on the counter at the extreme right.

shown in Fig. 1 on either side of the building involved would have been at least badly damaged, if not entirely, destroyed.

Fig. 3 (Upper), Storeroom Immediately in Rear of Store on First Floor.

All of the highly inflammable contents of this room was saturated with gasoline.

Fig. 4 (Center) Partial View of Basement of Building.

All of the wooden boxes and rubbish were saturated with kerosene oil. Directly in the center of this picture one of the fires was set. This had no connection with those in the upper floors of the structure.

Fig. 5 (Lower), Vacant Flat, Second Floor.

Taken from dining room, looking west into living room. Plaster and lath are broken away and floor torn up. In all of these openings turpentine and kerosene had been poured between walls.

The illustrations accompanying this article, from photographs taken by the Arson Squad of the Detroit Fire Department, immediately after the fires were extinguished, show graphically how complete were the preparations of this incendiary to accomplish the destruction of the building and contents and at the same time to destroy any evidence of his crime. But for the slip-up in his plans this would have been accomplished.

Building Saturated with Inflammable Substances

The structure was soaked from cellar to roof, as were the contents, with gasoline, kerosene and turpentine. Rubbish and inflammable materials were scattered on all sides. Boxes of matches were laid in convenient spots for the heat to ignite. In the basement, a partial view of which appears in Fig. 4, broken boxes, excelsior and other rubbish, soaked in kerosene oil, were scattered on all sides. It was in the midst of these that one of the fires was set, and was burning briskly when the firemen arrived.

Store and Storeroom Both Saturated

On the floor above, the stock of the retail grocery store was well saturated with oil of turpentine. In Fig. 2 is shown about 75 per cent of this stock, and in the center of the picture, behind a broken showcase, can be seen another of the four fires which were intended to hasten the destruction of the evidence and make sure that the plot did not fail. The third fire was in another portion of this stock.

Immediately in the rear of the store was situated a storeroom, apparently used principally for the accumulation of rubbish. Gasoline had been freely used on the contents of this room.

Another Fire on Floor Above

The second floor of the building was occupied by a vacant but partly furnished apartment. Here again preparations looking toward the success of the arsonist's attempts were very much in evidence. (See Fig. 5.) A feature of these arrangements was several holes, where the plaster and lath had been broken through and parts of the flooring had been ripped up. In all of these openings turpentine and kerosene oil had been freely poured, so that it ran down between the walls of the building. The fourth fire was set on this floor, where it would supposedly do the quickest work.

Incendiary Convicted and Sentenced

As soon as the investigation showed that conditions pointed to arson, a warrant was issued for Puglia and he was arrested. On September 29, after a trial of three days, he was found guilty, after the jury had deliberated for one hour. Puglia, on October 5, was sentenced to from one and a half to ten years in state prison.

This case will undoubtedly have a far reaching effect in deterring others of the same stamp from following this man's example.

Test Dust Explosion Effects

Tests were conducted at Everett, Mass., by experts of the Factory Mutual Laboratories to determine the effects of dust explosions. Among those witnessing the demonstration were members of the committee on dust explosion hazards and the committee on farm fire protection of the National Fire Protection Association.

Cornstarch and high test gasoline were used in the explosive tests which took place in a small building on the Everett meadows. Various types of extinguishers were also tested. A meeting of the dust hazard committee was held at the Hotel Statler in Boston at which David J. Price, of the Bureau of Chemistry of the United States Department of Agriculture, presided.

HARRY BELKNAP.

European Departments Advance Rapidly

Interesting Data on Study of Organizations Abroad by Robert H. Mainzer—Favors the Use of Four-Section Ladders in Cities

By WILLIAM JEROME DALY

ROBERT H. MAINZER, honorary deputy chief in the New York fire department, a student of fire engineering, and an international fire fan, returned recently from a two months trip through the capitals of Europe. It was fourteen years since he has been abroad and consequently he was able to note changes in operation. He told the writer his observations on European fire departments.

Honorary Deputy Chief Robert H. Mainzer, New York

"European fire departments have advanced more rapidly during the past fourteen years than have most of the departments in the American cities."

This blunt statement was made to me by Robert H. Mainzer, banker and international fire buff, who upon his return from Europe reviewed the conditions on the other side.

Fourteen years ago he made a trip abroad and brought back with him a lengthy report on conditions that resulted in the formation of a Rescue Company in New York city. The then fire commissioner, Joseph Johnson, in his annual report for that year, publicly acknowledged his indebtedness to Chief Mainzer for his valued research.

But that is aside from the matter at hand.

"For some unaccountable reason, American fire departments seem to be much slower in seizing upon new methods of fire-fighting than do European countries. This is in spite of the fact that we here in America have a great deal more money to spend for equipment than they have abroad," said Mr. Mainzer who has been studying firemanic matters for twenty-five years.

Lest the reader think otherwise, Mr. Mainzer is American born and was educated at Amherst College where he was not alone a classmate, but also the roommate of President Calvin Coolidge—Amherst '95. He is a partner in the banking house of Hallgarten & Co., one of Wall Streets' oldest establishments.

Berlin Has Few Fire Companies

And to show his absolute neutrality and independence of thought and action, Chief Mainzer made the following criticism of the Berlin fire department.

"It was amazing to me to see so few firemen and so few fire companies in Berlin, where there is a population of 4,000,000 and only 35 paid fire companies, 65 volunteer companies and 1,500 firemen, with 3,200 alarms last year. It is most unheard of, but the only thing I can attribute the Berlin situation to, is the fact that the big cities in America such as New York, Chicago, Philadelphia, Boston, San Francisco, and so forth, have a polyglot population, most cosmopolitan in its character, with a consequent lack of civic pride and responsibility. What is the result? Carelessness and negligence follow. Moreover, our buildings are not erected with the same care and attention. We still have the old law tenements in our big cities while European cities have erected modern, sanitary and fire resisting dwellings for the moderately paid working men and their families."

In the European cities visited by Chief Mainzer, which included Paris, London, Berlin, Zurich, Frankfort, Berne, Basel, Vienna, Budapest, Venice, Genoa and Milan the combined total number of fires is less per annum than the total in New York, which last year was 25,000.

I asked him to what he attributed this condition and he replied, "The inherent carelessness of the American and of course a certain amount of commercial fires as well." He told of observing the professional chimney sweepers abroad—men wearing high silk hats and carrying ladders on their shoulders, traveling through the streets soliciting jobs at sweeping out chimneys.

Europeans Are Strict On Discipline

The discipline of the firemen of continental Europe, Chief Mainzer declared, is noteworthy and such a thing as insubordination to a superior officer is unheard of, and negligible. He said there is no such offense as "back guff," and disobedience of orders is unknown. This he credits to military training of the firemen and the additional fact that the firemen recognize in their superior officers a technician and proficient commander whom they regard and look up to as one who excels them. The officers for the most part, Chief Mainzer says, come to the departments as officers, without having to serve as firemen from the bottom up.

The speaker pointed out too that the entrance tests for firemen in the big cities abroad are much stricter than they are here, due to the fact that the examining officials abroad lay greater stress upon the mental alertness of the applicant. The tests for chauffeurs, he said, are unbelievably severe and embrace every probable emergency that might present itself, such as the firing of a pistol shot in a remote part of the examining hall and then asking the applicant to say from which direction the sound eminated.

Firemen Do Various Tasks

The Berlin department does a complete ambulance service, as well as pumping out flooded cellars and fishing out lakes and canals, the bodies of human beings and animals, hence it is, my informant declares, that the Berlin fire department has won for itself the sobriquet—"das machen fur alles"—which means "maid of all work."

The existence of a Rescue Company as part of the Berlin fire department is credited by Fire Chief Walter Gempp of Berlin, to the New York Fire Department. He recommended its adoption within four weeks after his return to Berlin from his first American visit three years ago. The rescue squad apparatus in Berlin is a combination rescue and ambulance company.

The firemen in Berlin carry smoke masks snapped to a ring in their leather belts. The contrivance is a sort of face mask and is used where the concentration is heavy, particularly in cellars. At fires, the aide to the chief officer carries a shrill whistle and all orders are given by code on this whistle. Nothing is shouted as is so common in America. The men are familiar with the number of blasts on the whistle. The whistle code embraces everything from "stretch in" to "take up" as they say in New York.

The firemen abroad, Chief Mainzer tells me, carry hatchets in their belts, such as the American Indians used as tomahawks. These hatchets, he says, have helped many a fireman in serious trouble. Chief Mainzer thinks little of the leather boots worn

"THE discipline of the firemen of continental Europe is noteworthy, and such a thing as insubordination to a superior officer is unheard of and negligible. There is no such offense as 'back guff,' and disobedience of orders is unknown."

abroad. He says rubber is so high in price that leather boots are the rage with the firemen. One of the reasons for the high cost is the "prohibitive duty to be paid on rubber." The cities pay for the equipment, such as the army does.

Food Brought to Firemen

Officers of the departments in Europe sleep in quarters with their families, but the wives of the firemen are allowed to bring food to quarters.

Some of the firemen cook for themselves and their living quarters are "vastly superior to ours," but in Berlin the men sleep on hard army cots instead of soft beds.

One of the most impressionable things, Chief Mainzer related, is the respect in which the memory of firemen is held—especially those firemen who died in the line of fire duty, or in the war. He tells me that at Fire Headquarters in the principal cities, particularly in Germany, there are the most reverent markers and monuments to the departed members of the brigade or department. In Budapest in the drill yard the tablet contains the name of every man who made the sacrifice and the plot is always decorated with fresh flowers. Budapest also has a museum of relics, gathered from the large fires of the city in the past 100 years.

Chief Mainzer considers the drilling by the scaling ladder squad as "most remarkable" and particularly from the viewpoint of symmetry and rythmn, rather than speed. In American fire departments, Chief Mainzer thinks, there is too much gusto and desire to outshine one another, whereas in the European drills, uniformity and unison are the chief essentials. The entire drill squad abroad moves like an automaton.

Radio Used in Department

In Vienna, the Chief Herr Wagner is always in communication with the central station while out of quarters in his car. This is made possible by the use of radio with which the chief's automobile is equipped. No matter where he may go, he can be reached from the central office. The car is equipped with both receiving and sending apparatus. Telephones abroad are not nearly so well developed as they are here, Chief Mainzer declares, and hence it is that radio comes in quite useful to the fire chief when "on location."

Ladders abroad took the civilian chief's eye, especially the four section ladders, and particularly the Magirus which impressed him so much that he is still talking four-section ladders as the last word in ladder facility. Mr. Mainzer says with emphasis that the lengthy hook and ladder truck in cosmopolitan cities is bound to go the way that all things go when modern equipment is brought to the attention of progressive administrative officials of fire departments.

He says the ladders of the Magirus type are especially useful in London's narrow lanes and alleyways, that they can be manipulated by one man, that they do not need a tiller wheel and that he has often wondered why the American cities still cling to the "elongated unwieldy ladder truck, particularly in the thickly populated and heavily burdened traffic centres."

These four-section ladders, he told me, do not freeze, as has been said so often on this side of the ocean. He declares that Leningrad, Moscow, Vladivostok, Warsaw, Glasgow, Helsingfors, Hamburg, Riga, Reval, Stavanger, Dublin, Cardiff, Mukden and other cities in the frigid regions are successfully using the four-sectional ladder.

Dust Used in Fighting Fires

"Chemical dust, a pulverized commodity, is the biggest step forward in fire fighting," Chief Mainzer said in discussing the use or disuse of water for small fires in foreign cities. One of the great advantages he sees in the use of this dust or powder is the elimination of water damage which is such a big factor in the annual fire losses.

He predicts that dust or powder, because of its cheapness and its economical worth from the standpoint of eliminating water losses, is the coming ingredient in fire fighting "even more so than foam."

"Firemen abroad from the chiefs down speak with bated breath of the salaries paid in America to members of the fire department" according to Chief Mainzer, who added that the comraderie among the officers is 'almost touching.'" This he explained by describing the clubs and the socials which the officers have. There is a distinct line of demarkation, he told me, between the officers and the men. In Berlin, beer is permitted in quarters for the reason that the firemen never become intoxicated and never abuse the privilege. Mr. Mainzer while in Berlin was the guest of Fire Chief Walter Gempp in whose quarters he was billeted. One evening while dressing for dinner, Chief Mainzer from out his window observed a fireman of the headquarters company rolling a keg of pilsener out of the cellar. The New Yorker told me, "My mouth watered, so I raised the window and called out to the man—'prosit'—and immediately other windows were opened and there was a general laugh." Such a thing as over-indulgence in beer is unknown there.

Mainzer Made Honorary Member

Chief Mainzer was made an honorary member of the officer's association at a reception which Chief Gempp arranged and to which he invited all the chief officers and their wives. The officers abroad, he told me, are furnished with amusement at these meetings and also with motion pictures of the technical side of fire-fighting. These affairs are held in the drill hall or gymnasium at headquarters and once a week a lecture is given with the motion picture apparatus owned and maintained by the department.

The political revolutions in both Berlin and Vienna last summer to which firemen were summoned, turned out very disastrously for the firemen. They were fired on from windows and house tops and many of them were wounded. In Vienna last July when a big fire engulfed the Palace of Justice, the Chief Engineer Paul Bernaschek arrived and received a bullet through his helmet.

The Paris department is entirely military and in fact it is a branch of the army. The chief is Ivan Hivert.

The Venice department, Mr. Mainzer told me, relies almost entirely on boats, but there has not been a fire of any consequence in Venice for the past five years.

Chief Mainzer said that in every one of the fire departments he visited abroad, they look upon the American fire brigades as models.

Lakeland, Ohio, Seeking New Rating—An attempt is being made to have another fire insurance survey of Lakeland, Ohio, in an attempt to place the city in a higher class.

Alma, Wis., Rechases Fire Hose Threads—The hose couplings and hydrants of Alma, Wis., are being rechased to conform with the National standard.

Boston Repair Shop Men Have Outing—The first annual outing of the employees of the Boston repair shops in the fire department, was arranged at Rainsford Island; about 150 men attended.

Firemen Purify Federal Government Seat

The Capitol buildings at Washington, D. C., received their annual shower bath from the local fire department. The assignment was given to Captain George H. Reynolds who has directed this cleansing operation for the past nineteen years. He will soon be able to hang out his shingle as a specialist in taking the dirt out of political centers.

Another Case for Big Streams

Judicious Use of Streams of Heavy Calibre Might Have Confined Fire to a Single Plant

THE fire described in the last issue of this journal emphasized one point very clearly: Attempts by departments with limited apparatus to extinguish fires which have gained considerable headway in large plants of highly combustible nature are oftimes futile.

In this particular fire the department confined most of its effort toward attempting to extinguish a fire which had gained considerable proportions, with the result that the fire was permitted to extend to adjacent structures and thereby treble the loss.

The city in which this fire occurred has a population of about 35,000, and is located in the central part of the country. The water supply was good, although the pressure at the hydrants was insufficient for hydrant streams. Eight hydrants were within easy reach, as shown by the sketch herewith.

The Fire Department

The fire department consists of four engine companies, three equipped with 700 gallon triple combination machines and one with a 500 gallon quadruple combination (a combination of pumper, chemical truck, hose car, and city service ladder truck). Also a ladder company equipped with a city service truck.

For identification, company equipment is as follows: Engine Co. No. 1, 700 gallon triple combination; Engine Co. No. 2, 700 gallon triple combination; Engine Co. No. 3, 700 gallon triple combination; Engine Co. No. 4, 500 gallon quadruple combination; Ladder Co. No. 1, city service truck.

Response to alarms in the neighborhood of the fire is as follows: First alarm, Engine Cos. Nos. 1 and 2; Truck Co. No. 1. General alarm brings out the balance of the apparatus.

The Property Involved

As described in the last issue of this journal, the property immediately involved in the fire included three two-story adjoining buildings used as an auto top factory, stone side walls, brick front and rear, wooden construction within; a four story wholesale grocery and produce warehouse; four story brick and joist building used as an overall factory. All of these buildings are indicated on the sketch.

Contents of Buildings

The auto top factory, in which the fire started and gained its main headway, was engaged in the manufacture of open auto tops, side curtains and spare tire covers. In the basement of building "A" was a large quantity of soft coal, used in connection with heating the building and generating steam for factory purposes. In this same basement were also quantities of lacquer and celluloid in storage, duck canvas, wood stock and small metal parts.

In the basement of building "B," fabricating and machine work on auto top braces were carried on; unworked and finished materials were also stored on this floor, including wooden top braces.

In the basement of building "C" all finishing, including lacquering, was done. Here the finished parts were stocked awaiting assembly.

The basements of "A," "B" and "C" were connected by doorways which were not equipped with fire doors. This was the reason for the great and rapid spread of the fire in the basements of the buildings. The first and second floors of all three buildings were utilized in cutting cloth for tops, sewing, upholstering and mounting the same. Finished tops, both in bulk and in crates were present in large quantities in all three buildings. Most of the canvas, or duck, employed was stored on the top floor of building "A," where it was drawn on whenever needed.

The wholesale grocery and produce warehouse was filled with the usual line of groceries and storable vegetables.

The overall factory was occupied on the various floors by cutting tables, sewing machines and other equipment found in such establishments. There were also present many finished garments, both in bulk and in cases. The basement was used for storage of shipping crates.

The Fire

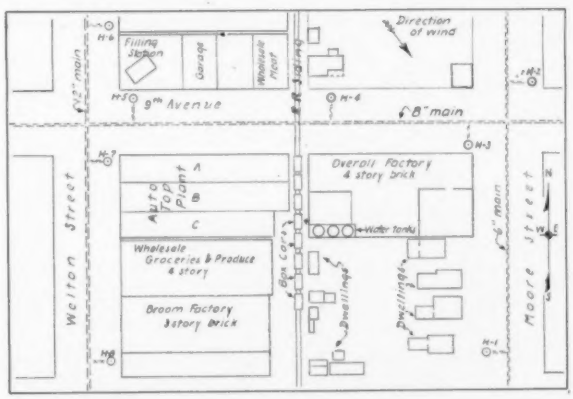
The fire is believed to have started either from spontaneous ignition in the coal, or from a gas heater left burning beneath a dry oven. Fire was discovered about 2 a. m., and at the time of discovery it had spread through the three basements and had risen by stairway to the first and second floors of building "A." Both buildings "B" and "C" were heavily charged with smoke. The policeman who discovered the blaze immediately transmitted a box alarm which was answered by Engine Cos. Nos. 1 and 2 and Truck Co. No. 1, together with the chief of the department.

When the chief officer arrived, it was apparent that the auto top plant was going to be fully involved before effective work could be done. The wind was blowing from the northwest which made the exposures to the east and south dangerous.

Suggested Method of Handling the Fire

There is a possibility that the fire could have been held by operating at close range within the fire building. This would have necessitated, however, thorough ventilation which apparently was not accomplished by the department operating at this fire. Assume (and such an assumption is justified in view of the limited data available) that the fire had not sufficiently advanced to prevent men entering the building if properly ventilated, ventilation should be accomplished at once by the truck company. Roof should be opened up and doors front and rear of the plant as well as on the 9th Avenue side.

The assignment of apparatus and lines on the first and general alarms was satisfactory as carried out by the department which operated at this fire. Instead, however, of operating only



from the street, these lines will be sent into the building as follows:

Both lines from engine company No. 1 at hydrant No. 7 into building "A," to kill whatever fire is burning on that floor, and one of the lines to go to the floor above to head off the fire there.

Engine Co. No. 2 placed at hydrant No. 4 to stretch in two lines, but instead of one of these lines going to the rear of building "A" as done by the department operating at this fire, one line should go to the rear of building "B" and the other to the rear of building "C" in order to kill any fire which is burning on the ground floor of either of these buildings. The two lines from engine Co. No. 3 will devote their efforts toward holding the fire from coming up through stair wells or other vertical openings.

Engine Co. No. 3 stationed at hydrant No. 8 to stretch in two lines, one to go to building "A" and the other to building "B." Both of these lines should be used for operating into basement by means of cellar pipe or operating directly down stairways if possible.

Engine Co. No. 4 at hydrant No. 3 stretch in a single line to the ground floor of building "C" to operate into the basement.

Where Fire Has Gained Too Much Headway

If fire has gained too much headway upon the arrival of the department to justify such assignments as have been given above, and if evident, as stated in the original description of the fire, that the building is doomed, then the department should confine its efforts toward holding the fire in the one building.

Here's the assignment of lines which should properly accomplish this purpose.

Bearing in mind that the walls of buildings A, B and C are of stone construction, there is little danger of fire passing into the building to the south except by way of windows overlooking the auto top factory. The four story wholesale grocery and produce building and overall factory are the two buildings which are the most seriously endangered. Heavy streams will have to protect these two buildings.

Now, on the assumption that the fire has reached such a stage in the fire building as to make futile any attempts to extinguish it, all efforts will be devoted toward confining the fire to this one building. Engine Co. No. 1, stationed at hydrant No. 7, will stretch in two lines to deck gun placed on Welton Street opposite the fire building. Using as large a stream as the engine and nozzle can accommodate, this layout will make possible the covering of the wholesale produce building with a heavy stream to prevent fire entering thereinto.

Engine Co. No. 3 at hydrant No. 8 stretch two lines to the roof of the four story grocery building where a pipe holder with large size pipe will be used to cover the exposure across the railroad track—the overall factory. This stream can operate onto the roof of the fire building together with its work of covering the overall factory.

Engine Co. No. 2 stationed at hydrant No. 4, stretch two lines to the roof of the overall factory, using play pipe with holder and this line will assist in covering the four story wholesale grocery and produce building as well as wetting down on top of the fire building.

Engine Co. No. 4 at hydrant No. 3 stretch in a single line to a position on 9th Avenue opposite the alley through which the switch track is located, using a 1¼-inch nozzle and cover the rear of the overall factory on the first and second floors. By this arrangement we have two heavy streams operating to check the fire from entering the wholesale grocery and produce building, we have two lines operating to prevent fire from extending to the overall factory.

All of these lines can be used in wetting down the fire building as the fire progresses.

It is believed that this layout of lines will hold the fire from spreading to adjacent buildings and thereby confine the fire to the original fire building—the auto top plant.

Rome, Ga., Plans for Xmas

On December 25 there will be more than one child in Rome, Ga., who will have occasion to thank the members of the fire department when they say their nightly prayers.

In that city they have an organization known as "The Gang." Members of this organization, with the assistance of the fire department, collect all discarded or broken toys. This practice was started two years ago and the results are indicative of the good that has resulted.

Firemen patch and repair the play things until they are almost like new. There is a sled for one, a doll carriage for another, a pushmobile for an active youngster or a game for some other youngster whom Santa Claus might normally pass by. When the rural mail men make their Christmas eve trip, they have a heavy load of such toys shipped from the fire department.

Chief Taylor is treasurer of the fund that makes all of this good work possible. Funds are obtained by voluntary contributions and all of the work in connection with this worthy cause is given gratis.

Persons having old toys notify the fire department and some one calls to take the play things to the fire station to be fixed up.

The firemen are preparing now for "the night before Christmas when all through the house not a creature was stirring...."

Incinerator Constructed to Burn Vegetable Oil Cases

The thousands of cases that are used in shipping vegetable oil must be destroyed some way and so a special incinerator was constructed in San Francisco to burn these oil soaked boxes. The screen is attached to heavy angle iron uprights which are attached to a concrete base. The wooden cases are thrown into the fire through a hole in one end of the concrete base as illustrated. The cases make a hot fire but the heavy wire screen withstands the heat satisfactorily. The use of this incinerator has proven to be the best method for destroying the oil soaked boxes.

C. W. GEIGER.

Sacramento Tells Public About Fire Prevention

Almost ten thousand self-inspection blanks were distributed to the school children of Sacramento, and two thousand blanks were given to the merchants during Fire Prevention Week. About ninety-five per cent of the blanks were returned completely filled out. Rules for fire prevention were published in all of the newspapers of the city including those published in foreign languages. The department held a parade through the main streets of the city to drive home the fire prevention message.

Eastern Fire Chiefs Appoint Committees

At the meeting of the Eastern Association of Fire Chiefs held in Atlantic City, N. J., a committee was appointed to outline the policy of operation of the organization. This committee consists of Charles Fisher, Chief John Kenlon of New York and Chief R. L. Smith of Pittsburgh.

A committee was also appointed on by-laws. This consists of Ex-Chief Johnson, Chief Kenlon and Mr. Fisher. The association adopted the resolution presented by Chief Kenlon that the two dollar initiation fee be adopted—one dollar to go to the I. A. F. C., and one dollar to the Eastern Association.

The officers are aiming to establish a closer contact with the chiefs throughout the Eastern area and to have standards on apparatus, equipment and practical fire methods; adequate and reliable water supplies from the fire protection standpoint and actual demonstrations of various fire department methods.

Plans are being made to hold a convention in the spring of 1928 and to have, at this time, a number of important papers, demonstrations of fire apparatus by crews from New York, Philadelphia, Pittsburgh and other cities, and an exhibit of fire apparatus and equipment.

The association is conducting an intensive campaign for increasing the membership.

The following officers were present: President C. W. Greenfield, Arlington, N. J.; Vice-President, Ross B. Davis, Philadelphia; Treasurer, R. H. Smith, Pittsburgh; Secretary, J. H. Golden, Cohoes, N. Y.; John Kenlon, Chairman of the Board of Directors and Directors E. T. Alexander, Elkton, Md.; F. E. Soule, Coatesville, Pa.; T. Howell Johnson, Bloomfield, N. J.

Cleveland to Have Rescue Squad—A rescue squad will be placed in service in the east end of Cleveland, Ohio, in the quarters of Engine No. 10.

Barry Adverse to New Plan—A delegation of Cleveland, Ohio, firemen called on Director of Safety Barry requesting that the department work so that they will have one week on and one week off. The director chased the men out of his office. The department now works under the plan of twenty-four hours on and twenty-four hours off.

CAPT. DANIEL LAWLER CRUSHED TO "L" PILLAR BY FRIEND'S CAR

Oldest Fireman in N. Y. Department—Trained Chief Kenlon and Other N. Y. Officers—Instituted Sliding Poles in Stations

CRUSHED against an elevated column by a car driven by his friend, Captain Daniel Lawler died later in the Harlem Hospital at the age of seventy-four. He was a member of the department for fifty-two years and was more affectionately known as "Danny Boy."

The Late Capt. Daniel Lawler

He had been troubled by a chronic ailment for several years and he was on his way to have a prescription filled when the accident occurred. As he stepped out from behind an elevated pillar on his second trip, a car driven by Police Sergt. Eugene Jennings crushed him against the iron work.

Capt. Lawler had always wished that Death would find him in uniform, but Fate ended his career in street dress and while on an ordinary unromantic mission.

Many times he served as acting Battalion Chief but he never rose higher than a captain's pay. He tutored Chief John Kenlon in Engine Company No. 13. He trained Chiefs Daugherty, Crawley, Griffith and Kruger—men who later rose to higher rank.

He was a carpenter by trade. He cut a hole in the dormitory floor of his station, without official sanction, and placed a polished oak sliding pole. Officials of the department soon noticed that his company was at a fire a minute or more before the other companies. They investigated and found the sliding pole. Although Capt. Lawler was reprimanded, the action was never recorded. In fact, adopting the captain's suggestion that a brass pole would be even better, the officials erected sliding poles in all New York's fire stations.

Danny was awarded the Stephenson medal for his company's efficiency. He saved the life of Chief Griffith, then a fireman under him. The official mention that the Commissioner gave him for his heroism was secondary to that paid him by the man he rescued, whose baby boy was named Daniel Lawler Griffith.

Chief Kenlon had charge of the funeral details for the late Captain Lawler, who was buried with the honors of a battalion chief. The fire department band was present and choristers from Police Glee Club sang the requiem mass. He is survived by his second wife, two daughters and a son by his first marriage. His first wife died in 1911 and three years later he married her sister.

In the death of Captain Lawler, an interesting and forceful character has passed out of the New York Fire Department.

Kansas Firemen Elect Officers

At the recent convention of the Kansas State Association of Fire Chiefs in Kansas City, Joseph Waidelich of Topeka was elected president; Olander Lind of Kansas City, vice-president; K. D. Doyle of Wamego, secretary-treasurer, and J. K. Bennett of Hutchinson and Charles Marsh of Peabody, directors.

The Kansas State Firemen's Association elected Charles Hamm, Winfield, president; B. E. Deckert, Manhattan, 1st vice-president; Charles Lowers, Clyde, 2nd vice-president; K. D. Doyle, Wamego, secretary; George T. Mohrbacher, Marysville, treasurer. The other members of the executive committee are Charles Marsh, Peabody; W. B. Higgins, Solomon, and Harry Leonard, Kansas City. The legislative committee consists of George T. Mohrbacher, Marysville; Joseph Waidelich, Topeka; J. Irwin Gabel, Holton, chairman of the exhibit committee, and Otto Geisler, Leavenworth.

All of the temporary officers for the Women's Auxiliary have been re-elected for a full term. At the convention next year in Liberal, the auxiliary will have a program of their own.

Fire Apparatus for Holland Tunnel

The decision of the Engineers of the New York State Bridge and Tunnel Commission and the New Jersey Interstate Bridge and Tunnel Commission to use storage batteries for the motive power of their emergency trucks was reached only after long and detailed study. With this one point settled the work was only begun. Since a similar problem had never before been solved it was necessary to examine all the possible contingencies that might arise and then design vehicles that would best meet these conditions.

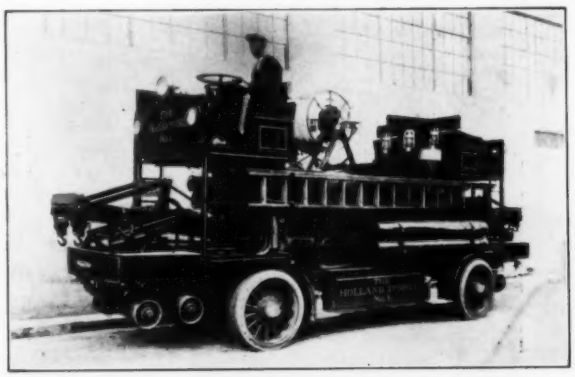
The roadways of twenty feet in width were designed to carry two lines of traffic and should a breakdown occur in one lane traffic could still pass through on the other lane. The problem here was how to remove the broken down vehicle without interfering with traffic in the other lane. This was solved by designing vehicles that would steer from either end and required no turning to move out of the tunnel but could drive in to a wreck, couple on to same and by reversing the movement draw the wreck out of the tunnel.

In order to have a minimum loss of time one of these emergency trucks is stationed at the Jersey City Tunnel plaza and one at the New York Tunnel plaza.

Each emergency truck carries a driver and crew of seven men, each seat accommodating four persons. The list of equipment seems ample to cope with any possible emergency and the following items were furnished with each truck.

Headlights and taillights, permanent searchlights and rear vision mirrors at each end, fire bell, five-ton wrecking cranes at each end, screw jacks, towing dollys of six and nine tons capacity, tool box with Stillson wrenches, hammers, pinch bars, towing rope, chain blocks, hack saws, etc., ladders, plain and extension, portable fire extinguishers and a foam type chemical fire fighting apparatus of two hundred gallons capacity operated by a pump taking its current from the motive power battery, hose mounted on reel, pike poles and fire axes.

As additional emergency apparatus each truck is equipped with four gas masks, four portable searchlights, first aid cabinet, four stretcher outfits with blankets, splints, bandages, etc., rubber



Fight-Fighting Apparatus for Holland Tunnel

coats, hats and boots, patrol covers and a portable inhalator of mine type.

Before being accepted by the Commissions these emergency trucks were given a very rigid series of tests, which included drawing from the tunnel up a four per cent. grade a loaded vehicle weighing fifteen tons carried on the towing dollys being assumed as having no wheels.

To make sure that the apparatus would work properly, an ancient automobile model was burnt in the presence of officials, engineers and newspaper men.

A gallon of gasoline was poured upon the upholstery of the car, and at a signal, a lighted match was thrown into the car. At the first flare, a tunnel policeman pushed a button in the fire alarm box. An alarm rang in the station at the New Jersey exit and automatically lighted the signal lights that warn auto-

mobile drivers to drive into the right hand line of cars so that there would be an open lane for the fire apparatus.

The most remarkable part of the demonstration was the ease with which the black smoke from the gasoline disappeared through the vents in the tubes. There is a passageway through the entire length of the tube at the top, between the tube and

Burning an Ancient Auto in Holland Tunnel, New York, to Demonstrate Fire Extinguishing Facilities

the tube lining. A strong air current is blown through this passage and all impure gases are sucked up and then discharged.

The designers are well pleased with the fire protection features of the vehicular tunnel.

Chief Boyd Injured at Fire

Sam B. Boyd, chief of the fire department at Knoxville, Tenn., received a bad scalp wound when a falling timber struck him in the head while fighting a roof fire.

Chief Sam B. Boyd, Knoxville, Tenn.

Chief Boyd was taken to the Knoxville General Hospital and six stitches were required to dress the wound. After receiving treatment, Chief Boyd was able to return to his home where he rested for several days.

The timber that struck the chief was about six feet long and was thrown from the building while removing a section of the roof to better fight the blaze that threatened to destroy the building.

Oakland to Reduce Fire Force

Some time near the first of the new year, Oakland, Cal., will discharge fifty of its fire force as an economy move to reduce government expenses.

At first, it was stated that the men would be discharged November 1 but the lay-off was postponed for several months. If in the meantime, revenue from business and professional licenses will prove adequate, it is probable that the entire force will be retained.

It was stated that the cut was made necessary due to the scant budget allowed for fire protection. There was not enough provided to pay the full force for the entire fiscal year. It is planned to reorganize the department so that the reduction in men will not be too pronounced.

The fifty men affected have service records ranging from six weeks to almost three years. The men affected are the last fifty men to be added to the fire department.

Low Loss of Shreveport Praised

Chief S. J. Flores, head of the fire department of Shreveport, La., and the low loss fire record of the city were praised by R. J. Gregory, state fire marshal, in a talk before the Lions' Club.

According to the chief's records, during the nine months of 1927, 2,986 inspections for hazards were made by uniformed firemen, 870 inspections by school children. During this period, there were only five fires in the commercial section and the total of fires for the entire city was 419. The fire losses were $135,840 less than a similar period of 1926.

The Lions' Club dinner was a success—members of the central fire station served the dinner and they were assisted by Chief Flores. Wives of the members and guests were also present to hear the chief commended for his low losses.

Chief Kennedy of Cedar Rapids, Dead

James Kennedy, head of the Cedar Rapids, Ia., fire department for six years and a member of the force for thirty-one years, died at the age of fifty-nine years from heart disease.

The Late Chief James Kennedy

He was appointed head of the department on November 5, 1921, to fill the vacancy caused by the death of Chief William A. Mohrbacher.

Chief Kennedy came to Cedar Rapids from Jersey City in 1873. He joined the fire department on April 9, 1896. He was made captain March 17, 1902, and assigned to Company No. 3. Two years later he was transferred to the central fire station as assistant chief.

When he was appointed chief, the entire department favored the selection. He was a sponsor of the two-platoon system and was a believer in strict discipline for the department. He advocated strict fire prevention methods and a rigid inspection service.

Chief Kennedy had been ill for several years. For a period about ten days prior to his death, his condition had improved greatly and it appeared as though he was on the road to health. A severe heart attack hastened his death. He had a wide acquaintance among firemen in Iowa.

Firemen Revive Gas Victim

Training that Captain William Kinary of Albany, N. Y., received in the New York Fire College under Chief Dougherty is directly responsible for the saving of a man who was overcome by gas in his home.

The victim came home early in the morning and he started the gas range to get warm. He became sick in a few moments and collapsed to the floor. His wife found him on the floor and some man called the fire department. Members of the company that responded applied the Schaefer method of resuscitation until another company arrived with an inhalator.

The men under Captain Kinary worked on him for an hour and forty-five minutes. They applied oxygen to the victim in his home, while he was in the ambulance being transferred to the hospital and even while he was in the hospital, and after that time, the victim commenced to show some signs of life.

In appreciation of the good work that the Albany fire department accomplished, the family made a contribution to the pension fund.

WITH THE EDITOR

Elect Firemen to the Village Council

A novel idea which has worked both to the advantage of the village and the fire department has been tried out in a small Illinois municipality. Three members of the local fire fighting forces have been elected as members of the village council.

In this town there is no doubt, it is said, as to the cooperation between the village government and the fire department. There is no question of expense or hesitation when the department needs equipment. Funds for its purchase are quickly forthcoming.

Such a plan as this should appeal to other municipalities. As a rule the fireman is a loyal and interested citizen, and he is endowed, generally, with more than average intelligence. His connection with the fire-fighting profession should make him both a quick and a broad thinker, and taken all in all, he should make a valuable addition to any local administrative body.

The added advantage of his knowledge of fire fighting should be invaluable when matters connected with the needs of the fire department, its discipline or questions of its administration come before the council for its decision.

The plan is worthy of careful consideration in choosing a member of the local governing body.

A "Hold Up" to be Discouraged

A practice which, unfortunately, seems to be gaining impetus as it progresses, deserves to be thoroughly discouraged, and the sooner the better. This is the tendency of firemanic associations and organizations to "hold-up"—we use the word advisedly—equipment manufacturers for contributions for this or that fund or object.

The fact that many such concerns respond to all these requests for funds—which are apt to total up to a considerable sum annually—in no way relieves the practice of soliciting such contributions from the charge of being a "hold up" pure and simple.

Aside from the fact that such renewed demands—which the manufacturer hesitates to ignore—are apt to become a severe burden upon the recipient when frequently repeated by one organization after another, the principle of the thing is wholly wrong.

Why should the manufacturer be expected to "come across" every time an association makes a request for a donation? Assume that the object is a worthy one and one in which the entire community will indirectly benefit—as most of such objects generally are—why should the burden of expense of these benefits be saddled upon a group of men who can possibly have but little interest in the proposed benevolence?

Although being drawn into line to help along a purpose, doubtlessly worthy, there is bound to rankle in the mind of an individual forced to contribute to it, a sense of coercion, which can but cause a feeling of resentment.

In the final analysis it is as though an association said to the manufacturers: "We may give you some of our patronage, and therefore it is up to you to contribute whether or not you make any profit from our business—if you get it."

Of course, nothing so tactless is said; but that is plainly what is meant.

Vigorous action from within such organizations would seem the one best method to purge them of such practices as the foregoing, and there are plenty of lovers of fair play in these associations, whose influence will quickly get rid of the objectionable actions of the body as a whole, or of its officers. Such a move will result in the long run in strengthening the organization.

Zoning and Fire Prevention

The great increase in zoning of municipalities was emphasized in a recent survey conducted by the United States Department of Commerce. In the report showing the results of this survey it is indicated that more than 30,000,000 persons, comprising over 55 per cent of the urban population of this country, now are protected by zoning ordinances.

According to this survey, 553 municipalities were zoned up to July 1 of this year. Out of the sixty-eight larger cities, with a population of over 100,000, fifty-two have zoning ordinances in effect.

Of the states taking action in the matter, forty-six and the District of Columbia have laws which give permission to municipalities to adopt zoning ordinances, although in some instances this permission is only granted to specific cities or groups of cities. Of these states, some twenty-eight, in preparing their laws, have utilized all or part of a standard state zoning enabling act put out by the Advisory Committee on Zoning in 1924.

There is a very intimate connection between zoning and fire prevention. The segregation of certain types of structures within limits prescribed does much to remove acute fire hazards which are bound to exist where buildings are built indiscriminately and with no relation to the hazards of exposure.

Then, too, the zoning relating to the restricting of buildings surmounted with wooden shingle roofs to

certain districts and their prohibition in thickly-settled or high value sections have worked wonders in this respect. A city without such an ordinance lays itself open to a disaster paralleling that of Salem, Mass., in which practically the whole city went up in smoke, wholly because of its flimsy and inflammable roof covering.

Two Kinds of Tests

Two kinds of fire tests were recently conducted which, while having similar objects in view — the demonstration of a principle of fire protection — yet, as far as the methods and place of conducting them were concerned, were as far separated as the two poles. One of these tests took place in Chicago and the other in New York City.

The Chicago test consisted of no less an ambitious plan than the deliberate setting on fire of an oil-soaked four-story building, situated in the high-value district. One would have imagined such an action, hardly allowable under the most extreme circumstances, would be called for at least by some very unusual necessity, and yet it was done merely for the purpose of demonstrating how a high powered fire apparatus, recently purchased, could handle such an emergency.

The possibilities of such a fire getting beyond control and causing immense damage to surrounding property was one not to be lost sight of, but the authorities apparently decided, in spite of protests from authoritative sources, to take the off-chance and go ahead with the test. That luck was with them and that the test was successfully conducted without loss to surrounding property, does not prove that on another similar occasion good fortune would smile upon them.

In contrast to this is a test conducted in the Holland Vehicular Tubes in New York. In this instance a decrepit auto was the sacrificial victim. The object was to demonstrate the efficiency of the fire-fighting facilities of the big tubes, and this was shown to be fully up to expectations. But the point to be emphasized here is that this test involved no risk to life or property. If the fire-extinguishing arrangements had failed — which they did not — no more harm would have been done than that a big volume of smoke from the burning auto would have had to be pumped out of the tunnel. There was nothing else to burn.

Naturally, a test should be as realistic as possible in order to demonstrate what it is intended to prove. But in order to attain this perfection, safety of life and property should never be disregarded. There rarely, if ever, is any necessity to do so!

Exeter, Cal., Chief Made Fire Marshal—Chief Milligan of Exeter, Cal., has been made deputy state fire marshal but he has not yet been assigned to any definite territory.

Mayor Nichols Warns Against Collections—Mayor Nichols of Boston has issued a warning against the collection of funds for securing salary increases. He stated that such a move tends to demoralize the department and that salary increases are justifiable only when recognizable merit prompts the award. He advised that all money collected be returned.

Chicago Burns Building for Test

Despite the warnings of the National Fire Protection Association, the Chicago Board of Fire Underwriters and other organizations interested in the reduction of fire losses, Mayor Thompson of Chicago went ahead with his plans to destroy a four-story building. The city had purchased a new pumper and the mayor desired to stage a spectacular exhibition to prove to the residents just how efficient a piece of apparatus was that the city had acquired.

The building was a four-story wooden structure unoccupied and about to be razed. The owners gave the city permission to burn it. The building was in the center of high values.

A representative of the N. F. P. A. wrote to the mayor as follows:

"Every fire is a potential conflagration and while I have no doubt that the Chicago fire department is well equipped to carry out its proper functions, in my opinion it would be tempting Providence deliberately to stage a large fire which would serve no useful purpose but could only be considered as a spectacle for the public.

"Chicago had an excellent example of the dangerous results of fire in old condemned streets in the spring of 1921, when

Crowds Watching Destruction of Test Building in Chicago

the fireproof Burlington railroad building was heavily damaged because of a fire which started in a group of old buildings across an eighty-foot street."

Crowds were on hand to watch the destruction of the building. The display was made more spectacular by the presence of fire boats and other apparatus to serve in the event that the fire got beyond control.

Firemen Should be on Council

By placing firemen on the council, one village has found a solution to the problem of securing new apparatus and needed improvements for the fire department.

Riverdale, Ill., is a village that is rapidly growing into the complex problems of city government. It was necessary for the municipality to have its fire protection facilities keep pace with the village growth. They agitated for better fire protection, and for a bond issue to finance the construction of a brick fire station to house two companies. But there is very good cooperation now between the authorities and the fire department.

This is because three members of the fire department are serving on the council. Captain Edward A. Kipley who suggested the plan, has served on the village board for four years.

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Nozzle Pressure on Chemical Lines

To the Editor:

I would appreciate very much if you would insert the correct answer and method of solving the following example in detail in the next issue of FIRE ENGINEERING.

Question: You have a layout of 250 feet of 2½ inch hose reduced to one section (50 feet) of 1 inch chemical hose using a ⅜ inch nozzle and 80 pounds engine pressure. What is the friction loss, nozzle pressure and gallons of water discharged per minute? Also give me the same example and results using a ¼ inch nozzle.

L. O. R.

Answer: The first thing to do in solving this problem is to change the line of hose into 2½ inch. The first section, that of 250 feet of 2½ inch remains the same. The 50 foot line of one inch hose is changed to 2½ inch hose by dividing by the factor for changing 1 inch chemical hose to 2½ inch which is 0.011.

$\frac{50}{0.011}$ = 4,545 feet of 2½ inch hose. Add to this the 250 feet of 2½ inch hose making a total of 4,795, or 4,800 feet of 2½ inch hose in the line.

K, $\frac{\text{——}}{10}$, for ⅜-inch nozzle on 2½-inch hose is found as follows: $\frac{⅜ \times ⅜ \times ⅜ \times ⅜}{10} = 0.001975$.

L, the number of 50-foot lengths of hose in the line, equals 96.

$$\text{N. P.} = \frac{\text{E. P.}}{(1.1 + \text{K} \times \text{L})}$$

$$= \frac{80}{(1.1 + 0.001975 \times 96)}$$

$$= \frac{80}{1.2896} \text{ or } \frac{80}{1.29}$$

= 62 pounds nozzle pressure.

Friction loss may be found by subtracting the nozzle pressure from the engine pressure or 80—62 or 18 pounds friction loss.

The flow = 30 × D × D × square root of pressure.
= 30 × ⅜ × ⅜ × √62, or 33.2 gallons per minute.

The solution of a similar problem using ¼-inch nozzle is precisely the same with the exception that the value of K is different. $\text{K} = \frac{¼ \times ¼ \times ¼ \times ¼}{10} = 0.00039$. L, as in the last case 96.

$$\text{N. P.} = \frac{80}{(1.1 + 0.00039 \times 96)}$$

$$= \frac{80}{1.13744}$$

= 70.5 or 70½ pounds nozzle pressure.

Friction loss = engine pressure minus nozzle pressure or 80–70.5 or 9.5 pounds.

Flow = 30 × ¼ × ¼ × √70.5.
= 15.7 gallons per minute.

Pressure Necessary to Open Clapper Valve

To the Editor:

Will you kindly settle the following discussion:

(A) claims that 2 lines, each with 120 pounds pressure entering a deluge set and a third line with 40 pounds pressure also entering the same deluge set—the 40 pound pressure line will be able to open the clapper valve and help feed the deluge set. The tip being open.

(B) claims that the pressure maintained in the deluge set from two 120 pound pressure lines that it will prevent the clapper valve on the 40 pound line from opening.

D. F. B.

Answer: If the pressures you give are all taken at the deluge set (not engine pressures) then the 40 pound line will remain inactive, the 40 pound pressure being incapable of opening a clapper against 120 pounds.

On the other hand, if the pressures you give are the pressures at the engine and you have long stretches of hose, then there is a possibility that the engine with 40 pounds pressure will be able to force some water into the siamese. The reason for this latter statement is as follows: Where the flow is great there will be considerable drop in pressure in hose lines—so much so that the 120 pound pressures at the engines may be reduced to a point below 40 pounds delivered by the third engine. If the friction loss is sufficient to reduce the 120 pounds to say, 30 pounds at the siamese, the engine which is discharging water at 40 pounds pressure will cause the clapper valve in the siamese controlling this line to be lifted slightly permitting some water to flow through. Of course the last named engine will not discharge very much water into the siamese because the moment a flow would increase in velocity there would be a corresponding drop in pressure.

Momentum and Weight

To the Editor:

At a recent fire in an ordinary building, a brick fell from a building a distance of approximately 225 feet high striking a person in the street and killing him.

The question came up as to what was the weight of this brick when it struck the person assuming that the brick when at rest weighed two pounds. I have figured it out as follows:

Velocity equals 2 x 32 x 225, and the square root of this sum equals 120 feet per second.

Momentum equals (as per Avery School Physics) where m represents the mass of the body, and v its velocity, the product mv will represent the quantity of motion or 120 (feet per second or v) x 2 (mass of the brick or m) equals 240.

Is it right to assume from the above that the brick weighed 240 pounds or struck with a force of 240 pounds at the end of its journey.

I wish that you would answer this and straighten me out.

J. McM.

Answer: The trouble in your solution is that you have confused weight with mass. A two pound brick will always weigh two pounds unless the brick is taken up to a high elevation or at the point of the equator where the force of gravity becomes less. Mass is the property of weight without the gravity element entering into consideration. The mass of the brick is the same regardless of whether the brick is taken to the center of the earth or is brought up to the North pole.

Momentum equals mass times velocity or m=mv.

Velocity=2 x 32 x 225=120.

Momentum=120 x 2=240 pounds-feet per second.

However, if you want to know the work that was done in killing the man with the brick multiply the distance, 225 feet by 2, the weight of the brick and the result is 450 foot-pounds of work.

To find the force with which the brick strikes, consider the distance required to absorb the momentum. Suppose that the brick coming down drove the person's head aside about one foot, then the momentum divided by this distance (one foot) equals 240 pounds. Or the force, when the brick struck, is 240 pounds.

Some Promotional Questions

To the Editor:

I am sending herewith a collection of promotional examination questions which have been asked in previous examinations in this city. I will appreciate very much your assistance if you will answer them in an early issue of your journal.

M. A. W.

The Questions

1. Describe fully the duties and responsibilities of a Lieutenant.
2. What difficulties does the fire department encounter at fires in the theatre districts?

3. What are the common causes of sprinklers and standpipes becoming out of service?

4. Explain fully the precautions that should be taken by the department in order that the fire hydrants throughout the city may at all times be in good working order.

5. Enumerate the different kind of reports a company commander is required to make out, either at regular periods or as occasion may require.

6. (a) What buildings by law are required to have fire escapes?
(b) What is the law relative to obstructing hydrants?
(c) What is the law relative to the right of way?
(d) How must gasoline be stored and kept in garages?

7. Describe the advantage to be gained by the fire department from inspecting of buildings.

8. If you were in command of a company and on your arrival on the fire grounds you found the building equipped with standpipes and the fire on the 6th floor, how would you proceed to get in service?

Answer 1. The duties of a lieutenant responding to and at fire: In going to and returning from a fire the lieutenant of an engine company (except when acting captain) rides on the second piece of apparatus. The lieutenant of a truck company rides on the turntable of the apparatus. In the absence of the captain he directs the driver.

When the first company to reach the fire ground is in charge of a lieutenant, he assumes command of the fire until the arrival of a captain or higher officer. If no company other than those which lieutenants command answers the alarm, the lieutenant first to arrive retains command.

Where he is operating under a captain, he sees that orders given by the captain are carried out, acting in the capacity of a foreman following out the instructions of a superintendent.

The duties of a lieutenant around the station include the supervision of all station routine, under the direction of a captain, and the lieutenant must see that such routine is properly carried out. A lieutenant has access to all books and records of his station and should be thoroughly familiar with all the affairs of his company.

Answer 2. The difficulties usually encountered by the fire department in theatre districts include traffic congestion, automobiles and pedestrians.

The large number of automobiles usually parked in the neighborhood of theatres act as a severe handicap in the event of fire. The great crowds of people, too, slow down the operation of the department.

Answer 3. Common causes for sprinkler systems and standpipes getting out of service are:

Sprinkler gate valves closed or partly closed.
Tanks or reservoirs over one-third empty.
Tanks or reservoirs frozen.
Steam or rotary pumps out of service.
Dry-pipe systems shut off.
Sprinklers frozen.
Alarm valve rotary or electric gongs out of order.

A sprinkler system, to be effective, must be maintained in proper working condition at all times. The frequency with which inspections should be made depends upon the conditions or location of the various valves, etc., of the sprinkler or standpipe system. In these inspections the above points should be thoroughly covered, namely, that all valves are open, tanks or reservoirs properly filled, that supply line leading to or from tank is not frozen, steam or rotary pumps connected to system are in working condition, that alarm valve (if such is connected to system) is in working order.

Answer 4. The most effective precaution to observe is periodical inspections of the hydrants. In case water is found in the barrel the reason for the water so found should be determined and if it is due to leaky valves or failure of the hydrant to drain properly these should be remedied.

These precautions are absolutely necessary in cold weather when a frozen hydrant means serious delay in getting it into operation. On inspections, hydrants should be carefully oiled, both at the valve stem where it bears in the standpipe of the hydrant and also at the lower extremity where there is also to be found a bearing. In certain types of hydrants involving the toggle principle, the bearings of the toggle as well should be oiled. On inspection care should be taken to see that caps are properly replaced on hydrant outlets for if they are permitted to remain off the department may find subsequently when the hydrant is to be used that it contains a lot of rocks and other rubbish forced therein by children playing on the street.

Answer 5. Each company is required to keep a book called "Company Journal." In it are recorded all matters of interest concerning the company and its members. Company commanders are required to inspect the company journal each day after roll call and to have any errors or omissions corrected.

Each company commander is required to keep a book called "Officers Journal," in which he enters currently all matters of importance to his company. Some of these are the following: all general, special, written and verbal orders received; property records; meter records; fire records in detail; and any other pertinent matter not covered in the company journal.

Answer 6. (a) This ruling which you ask relates to one of your local ordinances and information is not on hand to answer it with certainty. However, the fire escape requirements in New York are as follows:

"Every tenement house hereafter erected both fireproof and non-fireproof exceeding two stories in height shall have at least two independent ways of egress which shall extend from the ground floor to the roof, and shall be located remote from each other, and shall be separated from each other by walls. One of such ways of egress shall be a flight of stairs (constructed and arranged as provided in sections 18 to 22, inclusive). The other way of egress shall be directly accessible at each story to each apartment without having to pass through the first way of egress. Such other way of egress may be any one of the following, as the owner may elect: outside fire escapes, additional flight of stairs or fire tower."

The state labor law gives the following requirements for fire escapes for industrial buildings:

Required exits. Every building over two stories in height shall be provided on each floor with at least two means of exit or escape from fire, remote from each other, one of which on every floor above the ground floor shall lead to or open on an interior stairway, which shall be enclosed as hereinafter provided, or to an exterior enclosed fireproof stairway. The other shall lead to such a stairway; or to a horizontal exit; or to an exterior screened stairway; or to fire escapes on the outside of the building in buildings of five stories or less in height except that such fire escapes shall not be accepted as required means of exit in such buildings or particular classes thereof where the industrial board finds that such fire escapes would not in its opinion furnish adequate and safe means of escape for the occupants in case of fire; or to outside fire escapes in buildings over five stories in height when, in the opinion of the industrial board the safety of the occupants of the building would not be endangered thereby. No point on any floor of such factory shall be more than one hundred feet or if there is maintained throughout the building an automatic sprinkler system conforming to the requirements of section eighty-three-b of this chapter, and to the rules and regulations of the industrial board more than one hundred and fifty feet distant from the entrance to one such means of exit. Whenever safe egress may be had from the roof to an adjoining or nearby structure, every stairway serving as a required means of exit shall be extended to the roof. All such stairways shall extend to the first story and lead to the street or to an unobstructed passageway leading to a street or road or to an open area affording safe passage to a street or road.

(b) While your city law relative to obstructing fire hydrants is not available at this office, the usual requirements are that no automobile shall be parked nearer than 16 feet from any fire hydrant, nor so placed as to obstruct the use of the hydrant by the department.

(c) In most cities the fire department has the right of way over all vehicles except those of the U. S. Mail Service. As far as other city vehicles are concerned, the fire department has the right of way.

(d) Gasoline storage requirements vary in each city. Not being familiar with your fire department gasoline storage requirements the Editor is unable to answer this question.

Answer 7. The chief advantages gained by fire department members from inspection of buildings include: 1. Familiarity with construction of buildings, stairways, passageways, nature of contents, loads on floors, and other essential points which aid in the operation in the event of fire. The nature of the materials used in establishments should be known by fire department officers operating at fires and it is only through inspection work that this information is secured. Then, too, violations in building regulations which would tend to hamper the fire department are also known, and even if not immediately removed, may be guarded against in the event of fire.

Answer 8. Immediately upon arrival order two lines stretched from engine to siamese connection at street of standpipe. Have engine ready to start instantly and send men to fifth floor with two lengths of hose to be attached to standpipe connection on fifth floor and stretch up stairway to fire floor. As soon as men are in position, signal should be given to start water.

If there is any delay in getting the engine into operation the supply tank on the roof supplying the sprinkler system can be depended upon to furnish the streams until engine is started.

(*To be continued*)

WOULD-BE HERO SETS FIRE TO BROOKLYN METHODIST HOSPITAL

Two Major Operations Conducted While Firemen Fight Blaze—"Hero" Recognized as Pyromaniac by Fire Marshal Brophy

WHILE firemen were fighting a blaze started by a pyromaniac in the nurses' quarters of the Methodist Episcopal Hospital in Brooklyn, N. Y., one patient was operated on for appendicitis and a woman give birth to a baby girl. Nurses calmly moved patients to safer quarters and the switchboard operator remained at her post and notified the various nurses that fire had broken out in one of the buildings.

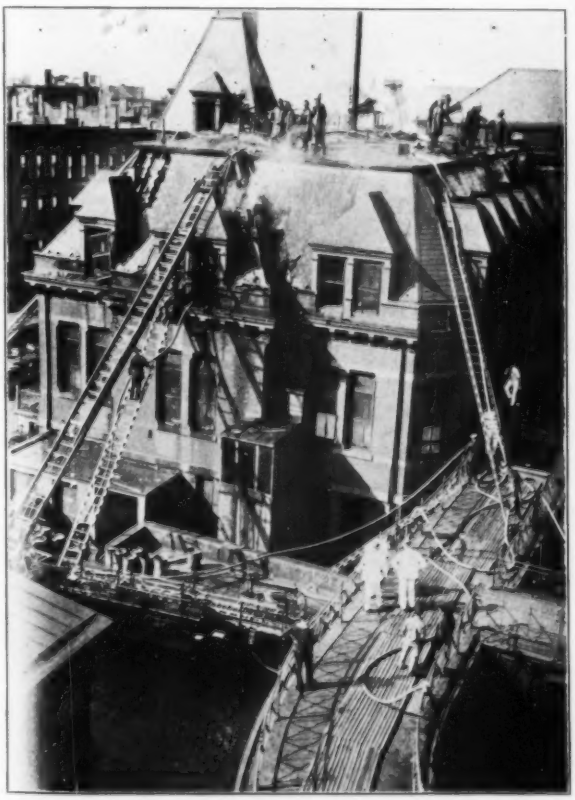
The fire started in the morning in a three-story brick building that was erected in 1891. A maid who was cleaning one of the rooms detected the smoke and notified the telephone operator. The porter who had set fire to the place by throwing an ignited wad of gauze beneath a bureau, grabbed a fire extinguisher when the fire was discovered, and started to fight the flames. He was overcome.

As the doctors tried to revive him, Fire Marshal Thomas Brophy entered and recognized the porter as the firebug who had set fire to a number of buildings in a certain section of Brooklyn. Doctors stated that the porter was feigning smoke suffocation. At police headquarters, the suspect admitted starting the hospital fire.

Patients became alarmed when they learned that the hospital was on fire but nurses went from room to room and quieted their fears. Many of them were moved to the basement for safety.

Two hundred nurses, comprising both the day and night staffs were called to duty as soon as the fire was discovered. Cooks went about preparing the noon day meal as though there was nothing of serious import going on.

Although for two hours, the fire resisted all efforts of the fire department, it was finally extinguished. The assistant superintendent of the hospital estimated the damage at $100,000. He said that although the hospital is forty years old, it is equipped with the most modern fire-fighting equipment and that the nurses are organized to perform efficiently in case of emergencies. He also said that none of the patients suffered from the effects of the fire.

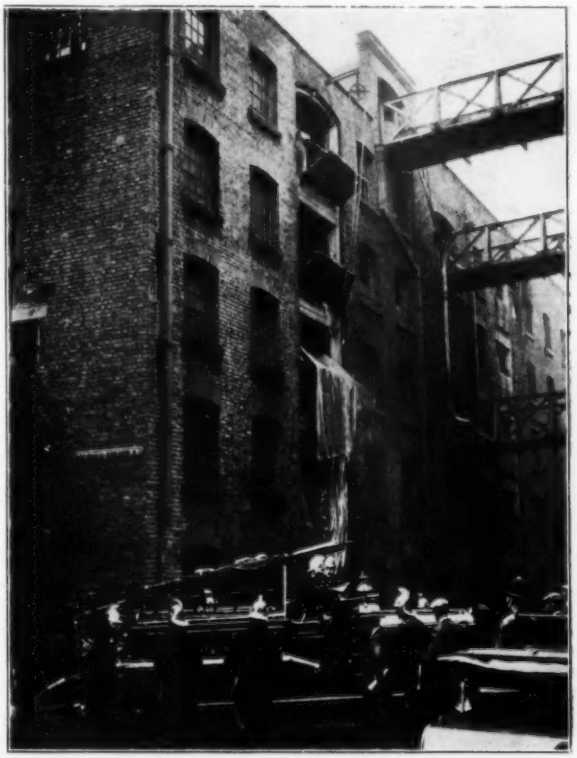


Section of Roof Damaged in Methodist Hospital Fire.

One fireman was hurt by a slate that fell from the burning roof. Another man who had watched the fire for about thirty minutes and who started to walk away, dropped dead from heart trouble brought on by the excitement.

The porter was known to the neighborhood as a person with a subnormal mind. He received $60 a month and his meals. An attempt will be made to commit him to some insane asylum.

Traffic in that section was tied up for some time while the firemen were fighting the blaze.



Tarpaulins Used to Drain Water From Building

One hundred and fifty firemen working for nearly three hours finally subdued a fire which broke out in a warehouse at Metropolitan Wharf, Wapping, London, E. Large quantities of spices and coffee beans were stored there and the warehouse is located in the dangerous section of the dock area. The firemen used tarpaulins to drain the watetr from the building.

Boston Fire Department Commended

Fire Commissioner Eugene C. Hultman, of Boston, Mass., has received a number of letters testifying to efficient service rendered by the department at recent fires. A few of these communications follow:

Mr. Eugene C. Hultman, Commissioner, Boston Fire Department, 60 Bristol Street, Boston, Massachusetts.

DEAR SIR:—The writer wishes to take this opportunity on behalf of Waldorf System, Incorporated, to thank your men for the very efficient work which they did in our laundry at 165-167 High Street.

In the first place, it was the firemen themselves who discovered the blaze and at a minimum amount of damage they very effectively extinguished it. The fire itself took place in a dry tumbler and not even the motor was damaged through chemicals or water, and I am informed through our superintendents that they were most careful to do their work with as little loss as possible.

It was certainly a meritorious performance and one which we greatly appreciate.

Very truly yours,
WALDORF SYSTEM, INCORPORATED,
By R. C. Adcock, Division Manager.

Eugene C. Hultman, Fire Commissioner, Bristol Street, Boston, Mass.

DEAR SIR:—Being the Lessees of the building at 11-13 Columbia St., Boston, we necessarily are much gratified in the service which the Fire Department rendered here.

The character of the fire was such that there was dense smoke,

due to the oil covering of machinery parts on the floor where the fire originated making difficult the work of your men, but the manner in which they handled the problem convinces the writer that they are not only resourceful in meeting such contingencies, but are willing to attack their problems with energy and thoroughness.

They confined the fire substantially to one floor, and yet, it is not difficult to imagine how easily a fire starting at that time of night in such a location could result in a very disastrous loss.

I am writing this letter, because I feel that one in your position needs, at least occasionally, to receive a few words, which will show in part the appreciation for the service rendered.

Trusting that you will find this letter in order and thanking you and your Department, we remain

Very truly yours,
ALLEN-SQUIRE Co.
Chester B. Allen.

Commissioner Eugene C. Hultman, 60 Bristol Street, Boston, Mass.

DEAR SIR:—On behalf of Miss Hannah T. Lynch and myself, proprietors of the Brighton Laundry, located at 59 Union Street, Brighton, I wish to commend Chief James McMahon, Captain Edward Doody, and the firemen assisting them in handling the fire discovered in our garage.

I feel quite sure that if it was not for the excellent services of the men the damage would be very considerable and as it is there is every evidence of the highest degree of efficiency exercised.

As a token of our appreciation I herewith enclose a small contribution to the Firemen's Fund.

Yours very truly,
BRIGHTON LAUNDRY,
K. G. Cunningham.

The check for $50 accompanying the letter was turned over to the Boston Firemen's Relief Fund.

HARRY BELKNAP.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending November 4

GRIGGSVILLE, ILL.—General store of B. A. Campbell 40
GARDNERVILLE, CAL.—Craunke business bldg. damaged..... 65
TRAER, IOWA.—Farmers' Mercantile Co. damaged..... 65
ROCKFORD, ILL.—Plant of Standardized Chair Co..... 80
FOREST RIVER, MICH.—Post office and adj. prop. damaged.. 25
KINEO, ME.—Three cottages and dormitories, Kineo House.... 40
MOBILE, ALA.—Paint dept. of Penson Beckman Co..... 165
ST. LOUIS, MO.—Residence of Mrs. N. Burkhart destroyed.... 25
BRATTLEBORO, VT.—Central Congregational Church damaged 50
DEWEY, ILL.—Grain elevator of J. M. Jones Co..... 25
STALEY, N. C.—Staley Chair Factory and adj. property..... 25
NORTH WOBURN, MASS.—Hopkinton Japanning Co. damaged. 210
DONIPHAN, MO.—Business buildings damaged..... 100
GLOVERSVILLE, N. Y.—Hudson Tanning Co. plant destroyed.. 80
FRONT ROYAL, VA.—Plant of Locust Pin Co. destroyed..... 25
PUENTE, CALIF.—Warehouse of C. C. Stafford..... 80
LIBERTY, N. C.—Factory of C. T. Fox and T. W. Berry..... 25
WINSTON-SALEM, N. C.—Basketeria Store, N. Trade St..... 30
LITTLE ELM, TEX.—Business bldgs. damaged..... 25
NEW ORLEANS, LA.—Bone plant, Armour Fertilizer Works.. 80
HERKIMER, N. Y.—Foley Block, business district..... 25
HAMILTON, ONT.—Cottages and garage at Grimsby Beach... 35
GLEN RIDDLE, PA.—Casino destroyed, Glen Riddle Rd..... 25
BUFFALO, N. Y.—Bldg. formerly occupied by Broadway Brewing Co. 25
DE KALB, TEX.—Property of Whatley Cotton Co..... 50
ATLANTA, GA.—Bldg. of J. M.Carmichael Furniture Co..... 25
PATERSON, N. J.—Property of Dillistin Lumber Co..... 65
GLENSIDE, PA.—Sheds of the Glenside Lumber Co..... 600
VICTOR, N. Y.—Warehouse of E. W. Bartholomew Coal Co.. 40
SOUTH SUDBURY, MASS.—C. O. Parmenter Co. grain Mill.. 40
ST. LOUIS, MO.—Home of Chas. B. Spalsbury destroyed.... 110
PITTSBURGH, PA.—Hallock Glove Mfg. Co. and adj. property 25
CONNEAUT LAKE, PA.—Barn on W. S. Raydure farm, 1 mile east 25
CHATTANOOGA, TENN.—Van Deman Bldg. damaged..... 50
PROVINCETOWN, MASS.—Puritan Cold Storage plant and adj. property..... 80
DETROIT, MICH.—Tivoli Theatre damaged..... 40
POINT ANNE, ONT.—Store, garage and dwellings..... 30
MOUNDSVILLE, W. VA.—Tipple of Central Mining Co., on Ohio side of river..... 40
UNION, MISS.—Post office and L. M. Taylor's residence..... 30
HOUSTON, TEX.—Randall Garage and Gardner Auto Top Wks. 25
PARIS, TEX.—Plant of Paris Candy Co..... 550
PECAN GAP, TEX.—Plant of Southland Cotton Oil Co..... 25
PHILADELPHIA, PA.—Garage of W. G. Tolliver, 5122 Walnut St. 40
ATHENS, O.—Raw material of Athens Flooring Co. destroyed.. 25
STAMFORD, CONN.—Richards & Co. plant damaged..... 165
PICKERINGTON, O.—Business bldgs. in center of town..... 40
TYLER, TEX.—Mecca Cafe Bldg. destroyed..... 25
CHESTER, W. VA.—Bisque kiln of Taylor, Smith Co..... 25

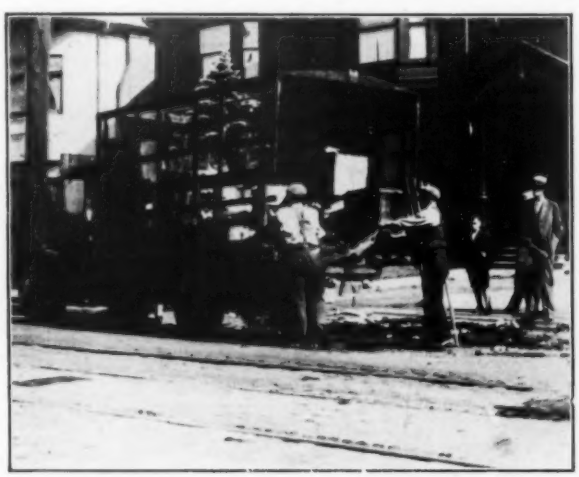
Week Ending November 11

EL DORADO, ARK.—Arcade Bldg. damaged..... 40
WAYNE, IND.—Coryell Garage and Wright Bus Depot..... 40
CHARLESTON, S. C.—Establishment of Basha & Bro..... 30
BROMPTONVILLE, QUE.—Shed of Bromptonville Lumber Co.. 40
MARION, IND.—Headquarters of J. B. McClain Co..... 25
BERLIN CENTER, MASS.—Plant of Berlin Cider Co..... 60
PHILADELPHIA, PA.—Cabinet shop of F. A. Cruice..... 25
CARMI, ILL.—Three bldgs. destroyed..... 40
HOPKINSVILLE, KY.—Pennroyal bldg. and adj. prop..... 90
BATAVIA, IOWA.—Home of Frank Henry destroyed..... 25
CAINESVILLE, MO.—Business establishments damaged..... 65
CAIRO, ILL.—Plant of Samuel Hastings Grain Co..... 80
PAXTON, MASS.—Greystone Lodge damaged..... 25
STERLING, MASS.—Plant of Sterling Cider Co..... 75
EL DORADO, ARK.—Plant of Root Refinery, 1 mile east..... 40
JERSEY CITY, N. J.—State Theatre, Journal Sq..... 40
PEAPACK, N. J.—Dormitory of Villa O'Connor Convent..... 80
HOUSTON, TEX.—Residences in negro district destroyed..... 25
CHESTER, PA.—Store of S. D. Levy, 3rd St..... 35
COLEMAN, TEX.—Warehouse of H. O. Wooten Grocery Co.... 40
SAN ANTONIO, TEX.—Mutual Bldg. damaged..... 80
AMARILLO, TEX.—Warehouse of M. & L. Transfer Co. destroyed 100
RICHMOND, KY.—Armory of 117th Field Hospital Corps..... 65
MADILL, OKLA.—C. L. Turley Co. and adj. prop..... 40
SAN MARCOS, TEX.—Mutual Mercantile Co. Bldg..... 60
MURRAY, KY.—Johnson & Hood Furniture Store and adj. prop. 25
CLARKSVILLE, TENN.—Business block damaged..... 80
RUSK, TEX.—Singletary Cafe and adj. prop..... 25
SANTA BARBARA, CALIF.—C. A. Ott plumbing establishment. 25
STARKVILLE, COLO.—Y. M. C. A. Bldg. and adj. prop..... 75
JACKSON, MISS.—Ricks storeage warehouse damaged..... 200
MANKATO, MINN.—Plant of Carney Cement Co..... 100
KANSAS CITY, MO.—Business establishments, Grand Ave.... 90
ST. LOUIS, MO.—20 boats of Wightman Bros. Boat Yard..... 50
HILLSDALE, N. Y.—Masonic Hall and Presbyterian Church... 40
UNIONTOWN, PA.—Plant of Hygea Ice Co. damaged..... 40

Jeffersonville, O., Awaits Pumper—Jeffersonville, Ohio, is expecting delivery of its new 350-gallon pumper. Cisterns are being constructed in various sections of the town from which the pumper will be able to obtain water.

Suggests Naming Apparatus for Firemen—At a local labor meeting in Quincy, Ill., a suggestion was made that fire apparatus should be named after firemen who have lost their lives in the service or who have been permanently maimed. They opposed the practice of naming the apparatus for outsiders and living people.

Toppenish, Wash., Has New Pumper—A Howard-Cooper pumper has been delivered to Toppenish, Wash. This is the eighteenth pumper delivered by the Portland, Ore., corporation. The pumper has a capacity of 450 gallons and has been designed by Captain Alex Holden. It has lights which turn with the wheels.



Truck Proceeds With Burning Load of Furniture

A traffic officer in Toronto, Canada, was surprised while at his post to observe a truck loaded with furniture pass his semaphore, with the truck on fire. He ordered the truck to stop and sent in an alarm from the nearest box. Parked cars near the burning truck were moved to safety. Although the roof of the truck was burning when the traffic officer noticed it, the driver and the two passengers with him were entirely ignorant of the fire in the vehicle.

JOHN KARL LEE

Chief Shire Goes to Mason City

Chief Daniel H. Shire, in charge of the fire department at the Rock Island Arsenal, Ill., has been appointed chief of the fire department in Mason City, Ia., by the city manager there. His appointment starts December 1. Captain Dick L. Risley of the Arsenal Fire Department will be advanced to chief of the department.

Mr. Shire joined the Denver fire department in April, 1907 under Chief Terry Owens who was then in charge. He resigned on January 1, 1909, to join the Davenport, Ia., department. Shire was assigned within a short time as driver for Chief Peter Denger and on January 16, he was advanced to captain.

He resigned from this department on April 7, 1918, and was made chief of the fire department at the Rock Island Arsenal.

In 1919 Chief Shire attended the New York Fire College and completed the course satisfactorily. He writes that he owes his success in fire department work to FIRE ENGINEERING and to the New York Fire College training.

Chief Daniel H. Shire

De Castro of Panama Promoted

Mauricio F. De Castro has been promoted to captain of the Panama City fire department and has been placed in charge of a new company that has just been formed. The company is known as Panama No. 6 and will consist besides Mr. De Castro of a lieutenant, two sub-lieutenants and forty men.

Mr. De Castro has been a member of the volunteer fire service for twenty-four years. He is an ardent follower of the various conventions of the International Association of Fire Chiefs. Mr. De Castro was at the Portland, Ore., gathering and expects to be present at the convention in Philadelphia.

Capt. Lynch of New York Killed

Another officer in the New York Fire Department has died in his line of duty.

Captain David M. Lynch, a young officer thirty-seven years old and with a promising career before him, died as the result of an accident when he fell beneath the fire apparatus.

As the truck slowed up at a fire, Lynch jumped from the truck, but he slipped, fell and his foot became caught between the truck and the curbstone. He was immediately rushed to the Beekman street hospital, where at first it was thought the entire foot would have to be amputated. Later examination revealed that only the two crushed toes would have to be cut.

The captain had been under ether for 1¾ hours. He became nauseous, and as Dr. Harry Archer stated, conditions were just ripe for the development of pneumonia. He was fed oxygen, and in spite of the care given him by a special day and night nurse, Capt. Lynch never recovered. He died thirteen hours after the accident happened.

Before entering the service, he had been a painter. Six years ago he won the Kenlon prize for the best paper on the subject of Fire Prevention. He was recording secretary of the Fire Captains' Endowment Association and active in its affairs.

Chicago Claims World Record

Chicago believes that it has lowered the world record for a particular kind of department evolution.

Engine Company No. 4, in charge of Captain William J. Mackenzie, slid down the pole from the dormitory, boarded the apparatus, made a run to a hydrant, attached the suction line, laid out three hundred feet of hose and had an engine pressure of one hundred pounds all in the remarkable time of forty seconds.

The apparatus was out of quarters in eight seconds, had travelled 570 feet to the hydrant in fifteen seconds, had attached the suction and laid out the hose in thirty-five seconds and developed the engine pressure in forty seconds. This beat the best time in Chicago by eight or nine seconds.

This company has a Seagrave pumper and is one of the busiest units in the department. On one occasion they made a fourteen mile run to Evanston, Ill., and they answer more special alarms than any other company.

Captain Mackenzie, during the past ten years, has handled about 1,500 prospective pump operators and he is well versed with the various types of pumpers. At the time of the Burlington building fire, he was especially commended for his rescue of an aerial truck that was left in the path of a wall that was ready to crash any moment.

M. E. KRAUSE.

Another Company Makes Record

Company No. 1 of Worcester, Mass., is proud of the record which they made in a competitive contest among the companies of the city.

The winning company consists of Captain Arthur F. White, instructor, William H. Abbey, John F. Navin, John A. Baer, Edward J. O'Hara, James F. Healy and Captain William F. Hurley.

All companies went through the same tests. The time record of Engine 1 follows: Raising a 35-foot ladder to a third-story window and dog-chaining it, 42 seconds; stretching 150 feet hose line from hydrant up a ladder to third floor, 38 seconds; stretching 100 feet of hose from a double connection on hydrant to a "fire," 30 seconds; stretching two 50-feet hose lines into one 50-feet lead line, 38 seconds; stretching four 50-feet hose lengths, connecting them with a deluge set and adjusting a pipe holder to put in operation, 19 seconds; stretch hose line from ground to roof of building, showing play pipe at cornice and calling for water, 38 seconds.

Lower line to ground and remove "bursted" length of hose, replace with new line and bring it back to roof, 34 seconds; attach a 30-feet straight ladder and pull to roof, 1 minute and 11 seconds. The last test included the connecting of a bent cellar pipe and show at "fire," connect a Bresslin distributor and call for water and connect a Baker cellar pipe and bring water to nozzle, 16 seconds.

A. B. WHITE.

Haverhill Erects New Station

An interesting and attractive new fire station is now under construction in Haverhill, Mass.

The building will be a combination of firehouse and drill tower. The main structure is 88 feet deep and 48 feet wide and

Fire Station Being Constructed in Haverhill

will be of brick. The east wing for the fire alarm system is entirely separated from the main building with the entrance only by the front door. The west wing is for the office, smoking room, tower, and boiler room.

The main building is to be two stories in height with outside sleeping rooms on the second floor and recreation room at the

rear overlooking the Merrimack River. The dining room, kitchen, shower baths, toilets, and lockers are in the center of the second floor.

The two wings are each one story in height. The apparatus floor is large and has three double front doors. The drill tower is six stories high. The location of the new station is on Water Street. The plans were prepared by the firm of Morse and Dickinson, engineers and architects of Haverhill.

Chief William H. Hawkins, of the Haverhill Fire Department, is greatly pleased with the design of the new station and tower and is personally supervising the construction. Many of his original ideas were incorporated in the plans. The accompanying picture from an architect's drawing gives a good idea of how the building will appear when finished.

HARRY BELKNAP.

Necessary to Test Ropes Often

An Eastern fire department has had two experiences recently that emphasizes the importance of testing all ropes used in fire department work.

At the drill school, the firemen were lowering a line after having replaced a broken length which completed the evolution. The rope broke and the hose and the playpipe came crashing down to the ground and luckily just missed some of the men who were standing there below.

A little later a fifty-five-foot extension ladder was being raised and the men were hoisting the fly. The rope broke and fortunately the catch took hold on the first rung down.

One of the officers in trying to account for the two freak accidents recalled that the chemical tank on the apparatus had leaked and some of the solution had spilled on the ropes. The ropes were partially eaten away.

The department will now test their ropes in advance to make sure that they are capable of bearing the load.

New Way of Fighting Forest Fires

United States Forestry Department officials, with the cooperation of engineers of the Caterpillar Tractor Company and a "Caterpillar" dealer have developed a new way of building fire breaks, particularly in those sections where, following the destruction of an area by fire, brush so thick that a man cannot walk through it, has grown up to menace adjoining forests.

A recent demonstration at the foot of Mt. Shasta, attracting forestry officials from far and near, proved so successful that the "Caterpillar" and grader equipment was purchased to continue the work it had demonstrated it could do so well.

By manual labor, the construction of fire breaks costs from $125 to $500 a mile. The "Caterpillar" proved its ability to complete a mile of excellent fire break every four hours.

CHARLES W. GEIGER.

Value of Tractor in Forest Fires Demonstrated

Forestry officials from Washington and San Francisco looked on with amazement at the ease with which a caterpillar tractor cut fire breaks through heavy brush growth in the mountains at Barley Flats back of Mt. Washington. After riding on the tractor used in operating the device, Col. H. B. Greeley, head of the United States Forestry Service at Washington said that it was undoubtedly the greatest development in machinery in years for dealing with brush fires.

Department Without Equipment

An idea and a group of willing workers are all that are needed to form a fire department. At least that is the experience of Barnard, a community in the town of Greece, N. Y.

At a meeting of a local dramatic club held in the spring of 1927, an idea was offered that some means should be provided to give the community fire protection. A committee was appointed to see if they could arrange to purchase some of the apparatus that was discarded by the Rochester, N. Y., department.

The committee reported that the problem was too large to come under the scope of the dramatic organization and a separate association was formed to promote the idea. They reported that such a plan was imperative to facilitate the formation of a fire district, purchase of fire apparatus and the erection of a fire station.

The dramatic club made a donation to start the work of the new organization. One of the local attorneys drew up the papers of incorporation and furnished the necessary legal advice free. After the incorporation papers were approved, a set of by-laws was drawn up.

The organization started on June 6, 1927, with thirty-two members and now has a membership of sixty-nine. Membership is open to residents or merchants of the town who are between the ages of eighteen and sixty. The application for membership must be accompanied by an initiation fee of five dollars which includes the dues until the next annual meeting.

A fire district is being formed and a petition circulated to have the Board of Supervisors form such a district. By this means it will be possible to have a fire house and the necessary fire protection.

The new organization held their first annual field day on September 17 and the members believe that it will not be long before they have their own fire apparatus.

Corrigan Made Chief at Chicago

Michael J. Corrigan has been appointed Chief Fire Marshal of Chicago to fill the position made vacant by the retirement of Chief Seyferlich who had been head of the department for many years.

Chief Corrigan entered the service as fireman on October 5, 1893. On May 16, 1904, he was promoted to lieutenant and made captain on October 31, 1907. Three years later he was promoted to battalion chief and on July 1, 1921 he became assistant fire marshal. Mr. Corrigan was made division fire marshal on July 3, 1923, deputy chief fire marshal on April 9, 1927 and advanced to head of the department on November 3, 1927.

Chief Corrigan has been mentioned in many of the department reports for bravery and for his ability to do the right thing in case of an emergency.

He was awarded the Lambert Tree medal for bravery in 1917. On the opening of the opera in 1917, a fanatic placed a lighted bomb in the aisle of the Auditorium Theatre. The present chief was then chief of the twenty-fifth battalion and on inspection detail at the theatre when called.

Hurrying to the spot where the bomb was placed, he picked it up and dashed to the street. In a most cool headed manner, he snuffed out the fuse. The Chicago Board of Fire Underwriters presented him with a gold watch for bravery.

In March of this year, Chief Corrigan was again commended for his rescue of two members of the department who were caught in the basement of a burning building. The *Daily Tribune* awarded him one hundred dollars for his bravery.

Chief Corrigan is married and has five children. He is an earnest student of all matters appertaining to fire department work.

Boston Has Five Incendiary Fires—Five fires, believed to be of incendiary origin, occurred in one day in the Back Bay and South End sections of Boston, Mass.

Bayonne, N. J., to Erect Two Fire Stations—Two new fire stations will be erected in Bayonne, N. J. The cost of the two buildings has been estimated at nearly $200,000.

Lieut. Croom Praises Fire College

Among the out of town officers who attended the recent course of the New York Fire College was Lieut. J. L. Croom of Wilmington, N. C. He ran with Engine Co. No. 14, one of the busiest engine companies in New York City while attending the college.

Asked what he thought of the New York Fire College he said: "It is an admirably conducted institution and its thoroughness and efficiency are very conspicious. The instructors are masters of their subjects and have the happy faculty of imparting their knowledge to the students in the College. The New York Fire College condenses into a short course more really helpful information than can be realized without actually attending it. Attention on the part of the students is most marked.

"Not only is the fire college very thorough in its work but the New York Fire Department stands alone in efficiency and deportment. The snap and military bearing of the men is a mighty fine reflection upon the training they receive.

"At this time let me say that I feel deeply indebted to Chief John Kenlon, head of the New York Department, to the instructors in the college and to my company officers who have done everything in their power to make my stay in New York a profitable one. I have never spent an equal period of time into which I have received so much in the way of scientific fire fighting."

Trenton Has Modern Fire Headquarters

Results of investigation in the design of the fire department headquarters in Philadelphia, Atlantic City and New York, have been embodied in the construction of a headquarters building in Trenton, N. J.

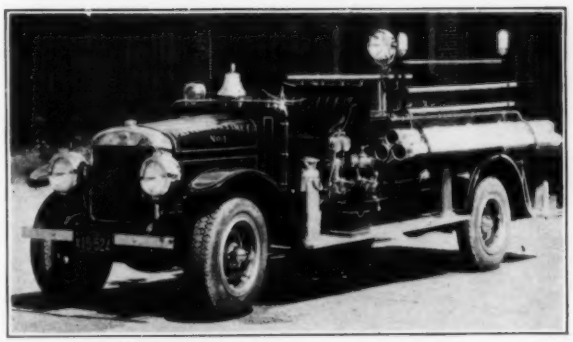
The building is in reality two separate buildings constructed of concrete and steel, faced with brick and cast stone trimmings. One building houses the headquarters companies, the chief and assistant chiefs, and the administration offices. The other building contains the complete automatic repair and painting shops so that about ninety-five per cent of the department's repair work will be done in their own shops.

The court between will serve as a fire training school where every fireman, recruit or veteran, will report for instruction under Captain Ervin E. Terry, about one day in each two weeks. Here they will maintain familiarity with all the items of equipment and their use, together with developing practical skill in fighting fires. Practice in jumping into a net, in holding the net, in taking hose up fire escapes and through windows, the proper ventilation of fires, use of every type of ladder employed by the department, the action of chemical extinguishers, the use of gas and smoke masks, and all the other things a fireman needs to know.

Within the headquarters building are dormitories for the men, a gymnasium where they may keep fit, shower baths and toilet facilities, combined office and sleeping quarters for the chief and assistant chiefs with private baths attached, a fire surgeon's office, and offices for other officials. The building was planned to take care of probable expansion in the headquarters staff. Several sliding poles communicate with the main floor, where the apparatus is housed awaiting calls for service.

New Type of Breathing Apparatus Worn on Back

Firemen of No. 1 Rescue Squad of Pittsburgh, Pa., are demonstrating the use of the new type McCaa oxygen breathing apparatus manufactured by the Mine Safety Appliance Company. Instead of having the breathing bag carried on the chest, the breathing bag of this equipment is designed to be worn on the back. This plan permits greater freedom of the hands and the device gives greater comfort to the wearer.



Triple Combination Hahn Pumper Delivered to Patterson, N. Y.

The department at Patterson, N. Y., has received a 400-gallon pumper with hose body. The pump is operated by a six-cylinder motor through a worm drive. It is equipped with the usual accessories such as chemical extinguishers but it does not carry a chemical tank.

Manufacturers of some of the equipment used by the department have gone out of business and repair parts have to be made in this shop. A full machine shop equipment is therefore available. Repair pits over which the trucks may be rolled are lighted and ventilated so that the mechanics work under the best possible conditions. A traveling crane is available to shift any of the heavier pieces of apparatus. The paint department will also take care of the hundreds of traffic signs used by the police these days. Solid colors will be sprayed, leaving only lettering and striping for the brush workers.

A woodworking shop on the second floor is so located that the crane readily reaches it for the handling of heavy repair jobs.

Bridgeport to Erect Fire Station

Latest trends in fire station construction will be incorporated in the station for Engine Company No. 2 that will be erected in Bridgeport, Conn. Specifications were drafted by Frederick J. Dixon, architect, in Bridgeport. The contract for the work has been recently awarded by the Board of Fire Commissioners.

Work on the new station, which will be erected just west of the old No. 2 house, is expected to be completed by February, 1928. The new station will have a frontage of 32 feet with a depth of 80 feet. It will be two stories high with a basement, constructed of brick with limestone and granite trimmings. Fireproof floors will be installed—in fact the entire building will be fireproof and will be of Colonial design.

The first floor for the most part will be taken up by an apparatus room where the company's pumper, hose wagon and watch desk will be located. One of the features on the main floor will be a kitchen located in a room 10x12 feet, where firemen returning from a tough blaze in winter time can thaw themselves out. The installation of the kitchen is one of the two new features included in the new building. There will be a locker room also on the ground floor.

Double doors, 34 feet back from the street, will form the entrances to the station. These will be so constructed to open automatically when an alarm is sounded. The ground floor will be covered with terrazo and the inside walls of the apparatus room will be lined with waterproof brick.

On the second floor will be six individual sleeping rooms, two in the front part of the building for the officers in charge and four others for the men in the rear. These individual rooms will mark the second feature not contained in any of the present Bridgeport fire stations. Lavatories and showers will also be on the second floor, with a recreation room measuring 16x30 for the men.

T. F. MAGNER.

Johnson City, Tenn., to Have New Company—A third fire company will be added to the fire department of Johnson City, Tenn.

Brownstown, Ind., to Purchase Apparatus—Bids have been opened for supplying fire apparatus to Brownstown, Ind. The specifications are for a 350 to 500-gallon pumper.

Bucket Brigade Saves Kineo, Me., Hotel.—Thirty men forming a bucket brigade saved the Kineo House in Kineo, Me., after a fire had destroyed three cottages and three dormitories including the large laundry. The loss is estimated at $75,000. It was believed that the use of dynamite helped in conquering the blaze.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

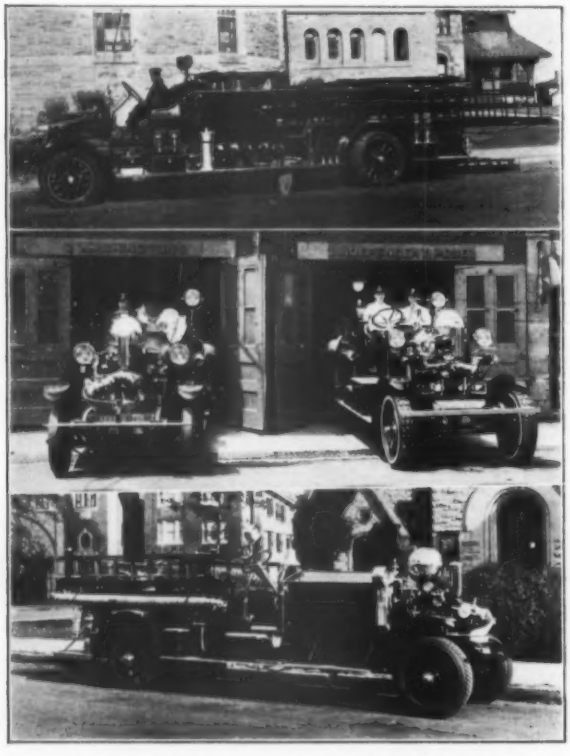
Efficient Volunteer Organization

By HENRY W. PILCH

(Concluded from previous issue)

Besides the telephone cable mentioned above, the fire alarm telegraph system utilizes thirteen thousand three hundred and fifty feet of rubber insulated lead incased cable, thirteen thousand one hundred feet of new or nearly new wire on the utility company poles and eight thousand six hundred feet of old number 10 wire which will probably be soon replaced.

The fire alarm office is situated in the municipal building, as is also police headquarters, and it is so arranged that alarms received by telephone may be transmitted over the regular fire alarm circuits by means of a transmitter board placed in the latter location when necessary. There has been no expense for repairs or replacements in fire alarm quarters since its installation in the municipal building in 1923, but the chief electrician has recently reported that the place is rather crowded, and recommends that additional space be given over to be used as a repair and storage room.



Some of the Morristown Department Apparatus.

Upper—Resolute Hook and Ladder Company. Center—Washington Engine Company No. 1 and Independent Hose Company. Lower—Humane Engine Company No. 2.

Alarms are sounded on a large compressed air whistle of the diaphone type mounted on top of the municipal building. Also, each engine and truck house is equipped with a gong and register. There is a telephone in each house except the First Ward Hose Company, which is connected directly with headquarters, and also an ordinary business phone. In addition to the above equipment, there is a small electric siren on the corner of Market Street and the park, which is sounded in the event of a still, thus clearing the streets. Finally, a large steam siren is blown in case of a general alarm, following the four rounds of the code number on the diaphone.

Morristown derives its water supply from driven wells situated at Sand Spring, Littleton and Jones Woods, situated near the town, and from Indian and Harmony Brooks, which are a few miles to the west.

Water Supply of Town

Of all the town departments, the water department has seen perhaps the greatest growth in recent years. Since 1925, the steam equipment at all the pumping stations has been removed and electrically driven pumps installed. At present the equipment at the Sand Spring pumping station consists of two 100 H.P. Crocker-Wheeler synchronous motors with excitors directly connected to two 750 G.P.M. two stage centrifugal pumps. The control and heating of the station is entirely automatic. Motors are started and stopped by time switches, and are protected by interlocking temperature and pressure relays. Should anything go wrong, an automatic device immediately stops the motors and causes a visible and audible signal to be registered at the Municipal building and at the home of the municipal electrician. The building is heated by the heat of the motors, and should this prove insufficient, a thermostat sets electric heaters in action.

At Jones Woods a 50 H.P. motor-driven centrifugal pump has been installed for high pressure service. This unit requires that it be started manually, but after starting, its control is automatic.

Water Pumping Stations

The Littleton pumping station houses two vertical synchronous motor-driven turbine well pumps, under automatic control. The starting, stopping and operation of these machines are regulated by time switches, and they are protected by temperature relays. The building is heated by electricity.

In 1925 work was also begun on a new reservoir at Jockey Hollow, outside of the town, which was connected to the distribution system by a 16″ main. The capacity of this reservoir is 13,500,000 gallons as against 750,000 in the old Court Street reservoir. Upon turning on the water from the new source of storage, the pressure in the town rose from 25 to 50 lbs.

By permission of the Department of Conservation and Development at Trenton, 3,000,000 gallons of water may be diverted from Wigwam and Indian Brooks. It is estimated that the town now has a water supply which will be adequate for fifty years to come. The water mains in Morristown range from six to sixteen-inches in size, with a few sections of four-inch. Hydrants are almost without exception equipped with steamer connections of 4½ or 5½-inch diameter, besides the usual 2½-inch outlet. In the business section as fast as possible the hydrants having the 4½-inch outlets are being replaced by large hydrants having the 5½-inch outlets and two 2½-inch outlets. Hydrants are inspected twice a year and a record kept of each. During the past year 22 new hydrants were installed and over 4½ miles of new mains laid, ranging in size from six to sixteen inches.

Fire Department Statistics

The report of the Inspector of Buildings and Combustibles shows that inspections have been made during the year of cellars and backyards where rubbish is liable to accumulate, and also of new buildings and construction. When requested, co-operation has been secured from property owners, tenants and contractors. Helping citizens to help themselves from loss by fire rather than the application of rigid ordinances or the deprivation of property rights has been the aim of this department. At present a Building Code is being prepared for presentation this year.

The report of the Chief Engineer for 1926 shows that 194 alarms of fire were answered by the department, and the fire loss was $69,295. Thirty-nine alarms were general, and one hundred and fifty-five were stills. Of the general alarms, thirty-five were transmitted from boxes, four were received and transmitted from Police Headquarters, and in several instances the alarm was received and transmitted from boxes and from Police Headquarters simultaneously. Of the still alarms Independent Hose Company answered 120, Resolute Hook and Ladder Company answered 28, Washington Engine Company answered 2, Humane Hose Company answered 1, First Ward Hose Company answered 3, and one out-of-town call was answered by Washington Engine Company. The department is rarely called upon

(Continued on page 1185)

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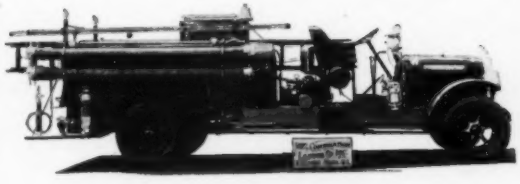

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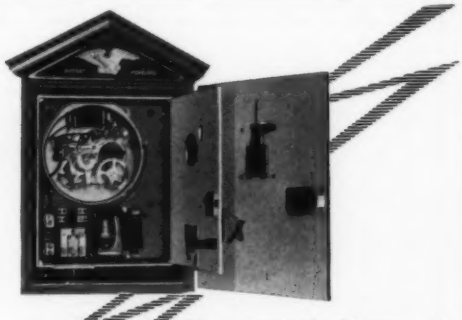

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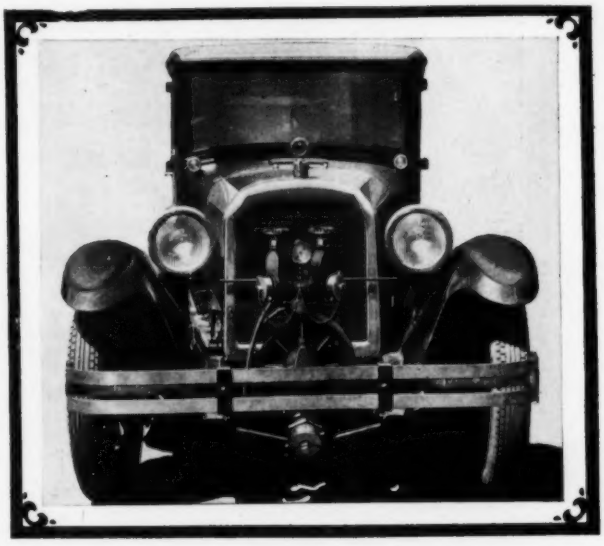

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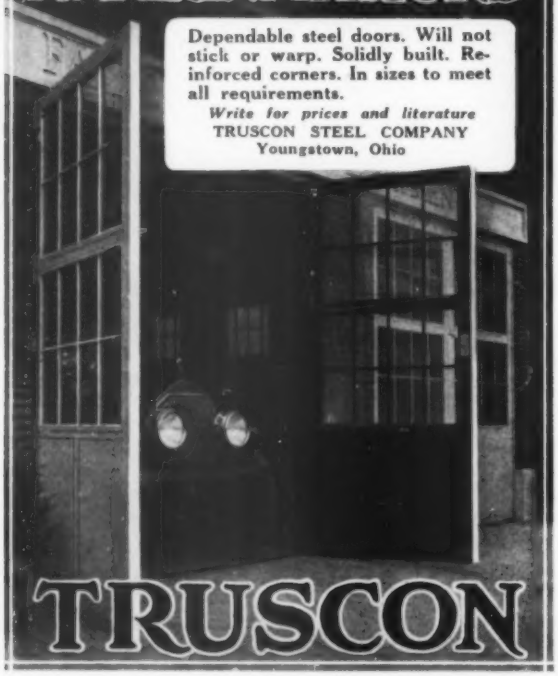

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INDUSTRIAL PLANT PROTECTION

When Sprinklers Fail

The main building at the International Fibreboard Company's plant at Midlsand, Ontario, was of light-joisted construction, of two stores, with brick walls. The installation of a long dryer had necessitated building a one-story brick extension, the roof of which was plank on steel. There was no wall between the first story of the Main Building and the Extension. A conveyor from the delivery end of the dryer in the Extension passed through an unprotected opening into the second story.

What a Drain Test Disclosed

When the fibreboard reached the second story, it went through a sanding operation, the final process before packing and shipping. Most of the fine wood dust from this operation was carried away by a ventilating system, but some escaped into the room and settled on the rough, unplaned sides of the roof joists and their supports. The fans which supplied warm air to the dryer took their suction from within the building, so there was a somewhat general circulation of air throughout.

The plant had just resumed operations on Sunday evening, August 15, after the week-end shut down. Ten minutes after the conveyor motor had been started, a workman discovered fire, at a point about midway along the conveyor, probably due to a breakdown of insulation in the conduit line to the motor.

The workman at once ran to the other end of the building and sounded the mill alarm. When he returned a minute later one whole bay was ablaze, and no water was coming from the sprinklers. Thirty-six heads just at and beyond the point where the fire started were inoperative because a piece of brick had somehow become lodged inside a sprinkler tee, shutting off the water supply. In this area the fire spread quickly over the light combustible material, gaining unusual headway and turning out great volumes of heat.

Workmen in the second floor saw smoke coming through the unprotected conveyor opening; but before they could get small hose into action, the fire had reached the roof. Sprinklers here opened, and the dry-pipe valves tripped satisfactorily, but the fire flashed ahead over the deposits of wood dust so rapidly that by the time the sprinklers were discharging water, the fire had already spread. The workmen turned and fled, barely escaping. The fan system helped to spread the flame and heat, and soon most of the sprinklers on both stories, a total of over three hundred, had opened.

The primary water supply for sprinklers came from the city mains, and 800 gallons per minute could be delivered at a pressure of forty-four pounds. In addition, the 1000-gallon fire pump had been started immediately after the alarm was given. Nevertheless, so large a number of heads had opened that the top sprinklers got but very little water. The result was that the dust-covered, light-joisted roof soon burned through and collapsed.

The public fire department arriving at this time found the water pressure very low, due undoubtedly to the breaking of sprinkler pipes when the roof fell. The sprinkler control valves were then closed, and effective pressure was restored. Three streams supplied by the fire pump were then taken from the yard hydrants; three more were obtained from the city pumping engine, taking suction from the lake; and three also from the street hydrants. These nine streams were used to protect nearby wooden storehouses when it became apparent that nothing could be done to save the Main Building. A fire door helped greatly in keeping the fire from passing through the bridge between the Main Building and these storehouses.

When the fire was finally extinguished, nothing remained of the Main Building but the four walls and a mass of ruins. The Extension was badly gutted. The adjoining boiler room was unharmed; that it came safely through the fire is good evidence of the value of fire-wall cut-offs, which allow the steam plant to operate uninterruptedly to supply steam for the fire pumps.

The most important thing which the investigation of the fire had to disclose was the reason why no water came from the sprinklers where the fire started. There seemed no doubt that an obstructed pipe was responsible. The yard piping system was flushed, the indicator posts dug up, the dry pipe valves examined, but everything was in good order. The sprinkler piping in the Extension was next reassembled, and the water turned into the system. It was then found that thirty-six sprinklers were without water, the flow stopping at a tee. Nearly one-half the area of the Extension was without protection. Unfortunately it was within this area that the fire started.

A half brick was found inside the tee when the piping was taken down. The brick probably got into the pipe before installation. Since the work was done during cold weather, frost might have held the brick in position and prevented it from falling out. Another possibility is that the brick was washed into the piping from the underground mains.

The fire loss is a little short of $215,000. The fire caused a complete stoppage of all manufacturing operations. The use and occupancy loss involved has not been determined, but it may bring the total loss to nearly $300,000.—*Factory Mutual Record.*

Study for Uniform Traffic Laws

When in March, 1926, the general session of the National Conference on Street and Highway Safety endorsed the Uniform Vehicle Code for adoption by states, it also pointed to the need for traffic ordinances in cities as nearly uniform as possible. At that time is was believed that the object could be attained by state or regional conferences, but it later became apparent that owing to the wide diversity existing in state laws, uniformity in ordinances could only be accomplished by nation wide study.

A committee was therefore organized for that purpose. It consists of seventy members with the same wide representation that has characterized the earlier committees of the Conference and the Conference itself. At a preliminary meeting held in Detroit recently it was agreed that the work should be divided among six sub-committees as follows: Vehicle Movement and Regulation; Pedestrian Facilities and Regulation; Traffic Signs, Signals and Markings; Parking, Terminals, Garages, Loading Facilities and Street Obstructions; Public Motor Vehicles, Railroads, Street Cars and Emergency Vehicles; Traffic Organization and Enforcement.

It is recognized that exact uniformity cannot be applied to communities of all sizes. One of the objectives of the committee, therefore, is to determine in what particulars, substantial uniformity is desirable and in what there needs to be flexibility to meet local conditions. Another condition is the extent to which, to meet constitutional or other requirements, the ordinance should repeat and to what extent, merely supplement the state law.

It is also understood that a number of matters under consideration such as types of signals systems, are matters for recommendation as to best practice and not for specification by ordinance. The committee also contemplates supporting the proposed model ordinance and other recommendations with reasons why.

When the work of the committee is completed, it is felt that there will be much good accomplished in reducing the chaos existing in traffic laws.

Hoytville, O., Purchases Pumper—An organization composed of farmers and merchants in Hoytville, Ohio, have purchased a pumper. A picnic supper is planned to commemorate its delivery.

Many Attend Braintree, Mass., Party—There was a large attendance at the dance given by Braintree, Mass., to raise funds for their annual Christmas tree party. Chief Tenney and Deputy Chief Sears were in charge. Chief Henry Stevens of Hull, Chief William Daley, of Brockton, Chief Alfred Meade of Quincy, Chief William Coulter of Framingham, Chief Hunt of Weymouth, Chief Brown of Hingham and Chief Holmes of Milton were among the visiting chiefs who attended.

FIRE DEPARTMENT ACTIVITIES

Sayville, N. Y., Erecting Fire Station—The corner stone was laid for the new fire station being erected in Sayville, N. Y.

Waterbury, Conn., Firemen Granted Increase—Waterbury, Conn., firemen have been granted an increase of $1 a day.

Westminister, Ind., Dedicates New Station—The new fire station of Westminister, Ind., has been officially opened by a parade in which a number of nearby companies participated.

Ramdon Lake, Wis., Purchases Apparatus—Ramdon Lake, Wis., has purchased a Boyer chemical car mounted on a Dodge-Graham chassis. The apparatus has two large chemical tanks.

Sioux City, Ia., Station to be Completed Soon—The new station being erected in Sioux City, Ia., for North Riverside Company No. 8 will be completed soon.

Summit, N. J., Receives New Apparatus—Two Seagrave pumpers have been delivered to Summit, N. J. The old engines will be turned in as part of the purchase agreement.

Carthage, N. Y., Receives New Apparatus—A Sanford pumper has been delivered to Carthage, N. Y. It has a 500-gallon pump and costs $7,000.

Perre, N. Y., to Vote on Fire Apparatus Purchase—Residents of Perre, N. Y., will vote on a bond issue to finance the purchase of fire apparatus.

Locust Valley, L. I., Receives Ladder Truck—A Seagrave ladder truck has been delivered to Locust Valley, L. I., N. Y. John C. Rosenburg is chief of the department.

Glidden, Ia., Has New Apparatus—Fire apparatus equipped with two forty-gallon chemical tanks has been delivered to Glidden, Ia.

Williamsport Ready for Fire Alarm System—Everything is ready for the installation of twelve Gamewell fire alarm boxes in the business section of Williamsport, Pa.

Design of New Castle, Pa., Station Changed—Plans for the construction of a fire station in New Castle, Pa., have been changed so that the entrance will have only three doors instead of four.

Protest Painting of Fire Stations—A number of objections have been filed because the fire stations of Lancaster, Pa., have been painted red and green. The people do not like the color scheme.

Union City, N. J., Has New Company—A new fire company has been placed in service in Union City, N. J., equipped especially to fight oil fires. The apparatus contains foam equipment, soda and acid tanks.

Milford, Conn., Approves Plans for Central Station—Plans for a central fire station in Milford, Conn., has been approved by the Board of Finance. An appropriation of $185,000 has been made for the work.

Lexington, Mich., Purchases Pumper—The village of Lexington, Mich., and the farmers in the immediate vicinity contributed towards the purchase of a pumper. The apparatus replaces an old hand pumper that was purchased in 1872.

Signal Hill, Cal., Adopts New Salary Ordinance—A new ordinance has been adopted in Signal Hill, Cal., which provides for an increase in pay following the third year of service. A new Buick car has been purchased for the use of the chief.

Denies Demoralization of El Cerrito Department—Chief W. A. Hinds denied reports that the department of El Cerrito, Cal., was demoralized because of the resignation of some men as a protest to the discharge of Engineer Byrd. Only two men have resigned and the other men have voted to support the chief.

N. Y. Deputy Fire Commissioner Resigns—William F. Thompson, deputy fire commissioner of New York city in charge of Brooklyn and Queens, has resigned from his office because of illness. He is sixty-six years old and was appointed on January 1, 1918. The office pays $7,000 a year.

Accuse Firemen of Showing Off—Envious citizens say that the volunteer firemen of Hagerstown, Md. are so proud of their apparatus that when they return from a fire alarm, they often go out of their way to show off by driving through the business part of the city.

York, Pa., Firemen in Celebration—Firemen of York, Pa., took an active part in the celebration of the sesquicentennial being held in that city. York prides itself on being the cradle of patriotism when the fight for the colonist's independence was at its lowest ebb.

New Haven Makes More Competitive Positions—Positions of first assistant chief, superintendent of fire alarm telegraph and lieutenants in New Haven, Conn., will be filled by competitive examination. The assistant chief receives $2,900, assistant fire alarm superintendent, $2,472 and lieutenants $2,198.

Omaha, Neb., May Re-Locate Fire Stations—Fire stations in Omaha, Neb., may be re-located and the stations that are not needed may be sold. A survey is being made by Chief John Coyle. This will be the first time that the companies will be redistributed since the days of the old horse drawn companies.

Head of Fire Equipment Company Dead—Charles A. Rideout, president and treasurer of the Henry K. Barnes Company, dealers of fire equipment and supplies in Boston, Mass., died in a taxicab while on the way to his home in Arlington after becoming suddenly ill in his office.

Sun Starts Fire in Show Window—Among the unusual fires may be listed the fire that started in the show window of the New England Doll and Novelty Company in Boston, Mass. Rays of the sun passing through the plate glass and through a glass ball in the window, ignited a group of celluloid toys.

Lake Charles, La., Improves Fire Alarm—With the installation of the $20,000 fire alarm system, Lake Charles, La., expects to reduce the time of responding to a fire about one-third. As soon as the system is installed, the public will be educated into the proper way of turning in a fire alarm. The new system will include seventy boxes.

Des Moines, Ia., Firemen Teach Boy Scouts—Des Moines, Ia., firemen instructed the Boy Scouts in the art of fire-fighting and fire prevention. They were taught how to jump into fire nets, slide down brass poles and how to use oxygen gas tanks. Many of the scouts were trying for a merit badge in firemanship.

Chief Sennott Praised for Work in Fire—Chief Sennott and the members of the Boston fire department have been commended by the superintendent of the Massachusetts Home. A fire in that institution prompted a two-alarm fire. In a letter the superintendent wrote, "The men showed themselves to be most efficient, careful and courteous in every way."

Boy Scouts Find 36 Fire Hazards—The boy scouts of Burlington, Ia., have found thirty-six types of fire hazards in Burlington as a part of the Fire Prevention Week program. Most of the hazards discovered were due to accumulation of rubbish. Notice was served to the owner to remedy the condition and the scouts will make a second inspection to see if the conditions have been corrected.

Atlantic County, N. J., to Use New Plan—The Atlantic County Firemen's Association of New Jersey will arrange a new system of cooperative calls so that in the event of a major fire, the town that furnishes aid will not in turn be left without fire protection. This is an aftermath of the recent fire that occurred in Ocean City, N. J. It is proposed to have a plan whereby apparatus will be moved in.

Home Proves More Dangerous Than Fires—Battalion Chief Michael Walsh of Philadelphia, Pa., has been fighting fires for forty years, climbing ladders to dizzy heights and risking his life in general. Several weeks ago, he was taking down the awnings of his home and he fell from the ladder. He suffered a fractured hip and a broken right arm. Chief Walsh will be on the inactive list for some time because of this accident.

Truck Wrecked but Men Escape Injury—Six firemen responding to a fire on a ladder truck in Pottstown, Pa., narrowly escaped serious injury. In leaving the fire house, the steering pin on the tiller jumped out of its socket and the rear end of the truck went out of control. The machine crashed sideways into a large tree, breaking the wheels and damaging the ladders. Firemen on the running board jumped to safety although the tillerman stuck to his post.

Want 1,000 Extra Firemen in Chicago—Fire Commissioner Goodrich stated that one thousand more firemen are needed to adequately protect Chicago. This would permit from twelve to sixteen men to a fire company and enable the creation of twenty-one new fire companies. This increase would cost $2,280,000 at the outset. A committee of the city council announce that they will start on a junket to inspect fire alarm systems in Detroit, Buffalo, New York and Boston, Montreal and Quebec before making plans for the improvement of Chicago's system. The trip will cost $6,500.

780% Increase in Fire Insurance

In twenty-six years the total amount of insurance in force in the United States climbed from $23,044,596,207 in 1901, to $202,902,948,095 in 1927—an increase of 780%.

Fire Insurance Underwriters respect ADT Services for their effectiveness, the supervision given them, and their good record since 1873. Property protected by ADT pays less for insurance.

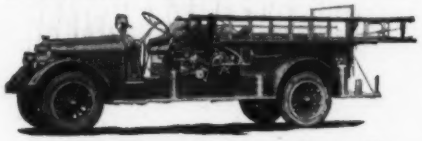
Ask us about it.

Controlled Companies,

American District Telegraph Co.
183 Varick St., New York, N. Y.

PROTECTION A.D.T. SERVICES

"UNIVERSAL"
MOTOR FIRE APPARATUS



Reliable—Fast—Sturdy and the Price is Reasonable

We can do this because "Nott" engineers have been building fire department equipment for almost half a century and because quantity production and efficient manufacturing methods reduce our own costs to the minimum. We attach a fair profit to these costs and pass along the advantages of this combination to municipalities in the form of quality fire apparatus at a reasonable or lower than usual price. The "Universal" lines includes types for every requirement. Be sure to get complete information before you place your next order.

NOTT

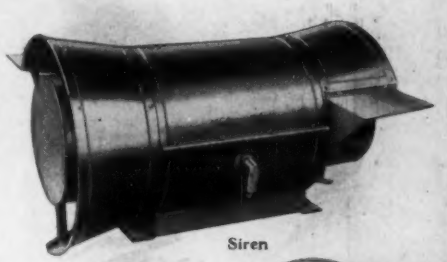
A Mark of Quality

BUILT ON THE UNIT RENEWAL PLAN

Write for free copy of "Reliable Fire Apparatus"

W. S. NOTT COMPANY
Established 1879
201 N. 3d St., Minneapolis, Minn.

Holtzer-Cabot Fire Alarm Systems for Small Towns



Siren

"M D"
Fire Alarm Station

Holtzer-Cabot Electric Sirens

are adaptable to the changing fire alarm requirements of your city.

This Siren which sends out a peculiar penetrating, unmistakable call for help can be installed as a single unit at first to take care of your present needs, and later automatic coding equipment can be added to complete the fire signal system.

Write now for specifications and full information.

Fire Alarm Control Panel in Case

Manufacturers of Signaling Systems for over 50 years

THE HOLTZER-CABOT ELECTRIC COMPANY

125 Amory Street, Boston, Mass.
6161-65 So. State Street, Chicago, Ill.

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

NOTE—

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bush.d.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
FITTINGS

R. D. WOOD & CO., Phila., Pa.

The Burrell All Service GAS MASK

The Standard for the Fire Fighters of America

The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin F-3.

Mine Safety Appliances Co.

Braddock Ave & Thomas Blvd. Pittsburgh, Pa.

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.

230 West Randolph St., Chicago, Ill.

The purchase of which for $1.00 we can give service that you are paying $2.50 for, when you buy hose of the other construction.

There's a reason.

We guarantee it for six years and furnish the Duro-built improvement and rocker lug coupling without additional cost.

BADGES

of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Delivery

Write for latest catalogue and price list

EVERSON-ROSS CO.

88 Chambers St., New York

Also makers of the ROSS Helmet

BLANCHARD

Adjustable Angle Nozzle Tips

are now in use in all the leading Fire Departments in this country, and in foreign countries. Many Cities and Towns are placing repeat orders. CITY OF BOSTON after trying out a dozen in various parts of the city under different conditions are so pleased with this nozzle that we recently received a repeat order.

The Angle Nozzle is made to fit all types of Water and Chemical lines.

"Take a tip from Blanchard" and write for pamphlet

ARTHUR H. BLANCHARD

25 Hampshire Street **Cambridge, Mass.**

LARKIN Shut-off Nozzles

Over 2000 Fire Departments

have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

Write for catalog

The LARKIN Mfg. Co.

Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

PROPOSED IMPROVEMENTS

Argyle, Lafayette Co., Wis.—Funds to the amount of $5,500 is being raised for the purchase of a new piece of fire apparatus.

Racine, Racine Co., Wis.—City Council considering the purchase of a new piece of apparatus for the fire department.

Patterson, Stanislaus Co., Calif.—Plans are being made for the formation of a permanent fire department for the city.

San Bruno, San Matro Co., Calif.—Plans being made for the construction of a new fire station in the industrial district.

Whittier, Los Angeles Co., Calif.—Fire Chief Topping recommended to the City Council the purchase of additional fire apparatus.

Selma, Fresno Co., Calif.—The Selma Farm Center has joined with the city of Selma in the movement to create a rural fire service. New fire equipment to be purchased.

Morrisville, Bucks Co., Penn.—Reports state Borough Council making place for the purchase of new apparatus for the fire department.

Knoxville, Knox Co., Tenn.—The council committee on public safety to recommend an increase in the budget to provide for the purchase of fire hose. The recommendation allows $7,500 for this.

Lorain, Lorain Co., Ohio—National Board of Fire Underwriters recommended the purchase of 50 fire alarm boxes.

Greenock, Allegheny Co., Penn.—A volunteer fire company was organized here with Wm. J. McGowan as chief.

Littlestown, Adams Co., Penn.—Alpha Fire Co. to raise funds for the purchase of additional fire apparatus.

Lincoln, Lancaster Co., Nebr.—Contract awarded for the construction of the proposed new fire station at 23rd and O streets.

Wildwood, Cape May Co., N. J.—New fire station is to be erected at 15th & Central Ave.

Fire Apparatus Salesman Wanted

Very good territory open to good live salesman on fire apparatus. Address: Box 145, % FIRE ENGINEERING, 225 West 34th St., New York, N. Y.

11-16

Efficient Volunteer Organization

(*Continued from page* 1178)

to answer out-of-town calls on account of the four well-equipped Township companies which are situated outside the corporate limits and protect the surrounding sections.

Because of the all around efficiency of the department, the town of Morristown enjoys a class D rating as regards insurance, and is hopeful of being placed in even a higher class.

The membership and officers of the Morristown Fire Department are as follows:

Chief Engineer—John J. Cullinan.
First Assistant Chief Engineer—Fred C. Michelfelder.
Second Assistant Chief Engineer—Wm. M. McIntyre.

Washington Engine Company No. 1—Membership 41
Foreman—Michael Geary.
Assistant Foreman—Herbert Hennion.
Paid drivers—Ed. Mulhall and Fred Moreland.

Humane Engine Company No. 2—Membership 31
Foreman—Earl Clayton.
Assistant Foreman—Harry Dunlap, Jr.
Paid drivers—Harry Hill and Jos. DeGroot.

Independent Hose Company No. 1—Membership 35
Foreman—Harold Ammerman.
Assistant Foreman—Raymond Bennell.
Paid drivers—Eliot Lindquist and Patrick Geary.

Resolute Hook and Ladder Company—Membership 50
Foreman—Wilbur F. Day, Jr.
Assistant Foreman—James Lindsley.
Paid drivers—William Ridge and Cecil Hildebrant.

First Hose Company—Membership 26
Foreman—Joe Shadwell.
Assistant Foreman—Joe Norris.
Driver—Jack MacDonald.

Board of Fire Wardens—Membership 33
Total membership 216.

CONVENTION DATES

May 7-10, 1928—NATIONAL FIRE PROTECTION ASSOCIATION (International). 32nd Annual Meeting, Atlantic City, N. J. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

Sept. 18-19, 1928—IOWA FIREMEN'S ASSOCIATION. 51st Annual Convention, Independence, Ia. Secretary, E. E. Parsons, Marion, Ia.

Oct. 22-24, 1928—KANSAS STATE FIRE CHIEFS and FIREMEN'S ASSOCIATIONS and WOMEN'S AUXILIARY. 13th and 42nd Annual Conventions and 3d Meeting, respectively, Liberal, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Pumper Delivered to Peekskill, N. Y.—A Seagrave pumper has been delivered to Peekskill, N. Y.

Fireman Is Noted Bird Fancier

Assistant Chief William J. Anthony of Stratford, Conn., besides his duties in the fire department, finds time to breed fast racing pigeons.

He is the owner of some of the fastest racing birds in the east. Chief Anthony owns a coop of two hundred racers, and in a competitive race with other Connecticut birds from Tallahassee, Fla., to Stratford, Conn., a distance of approximately one thousand miles, his birds won first prize.

Assistant Chief Anthony and His Prize Pigeon "Rex"

Chief Scott Defends Swan Dive

Statements have been made by men in the fire service questioning the authenticity of the 85-foot swan dive made from the drill tower in the motion picture, "The Fire Brigade."

Chief R. J. Scott, who had an active part in the filming of the picture, writes as follows:

"In order to satisfy the inquiries coming from your eastern fire department skeptics regarding the swan dive that is shown in "The Fire Brigade," was made by Murray Ewing of Engine Company No. 29, a member of the Los Angeles Fire Department. Neither Mr. Ewing nor the Los Angeles Fire Department claim that the height of the dive was eighty-five feet.

"In order to ascertain the exact height of the dive, we made a definite measurement to eliminate, as far as possible, any chance of injury resulting from the dive. The distance measured exactly seventy-six feet. I hope that this will satisfy those who demand exact figures.

"The Orphanage Building from which the dive was made still stands intact at the Metro-Goldwyn Studio in Culver City—and so does the drill tower. If there are some who are still not convinced, I am sure that Fireman Ewing can be persuaded to repeat the performance."

Those who have seen the picture will remember the dive as one of the outstanding features of the picture.

Booklet Issued on Care of Hose

In the Volunteer Fire Department section of FIRE ENGINEERING in the July 13, 1927 issue, there appeared an article on the care of fire hose.

Believing that the article contained a great deal of information that might be of value to fire companies, the Eureka Fire Hose Manufacturing Company, 50 Church street, New York, have reprinted the article in booklet form. The booklet will be distributed free to those who wish it.

Twenty FWD Trucks to Be Delivered to New York

New York city will have a fleet of twenty FWD fire trucks going into service soon. This type of apparatus is equipped with a 6-cylinder motor, dual ignition, oil filter, air cleaner, special 12-volt lighting and starting systems with an extra 12-volt battery. Before this type of apparatus was purchased by the city, it was put through some severe tests and it passed all of them in less than the required running time.

FALSE ALARMS

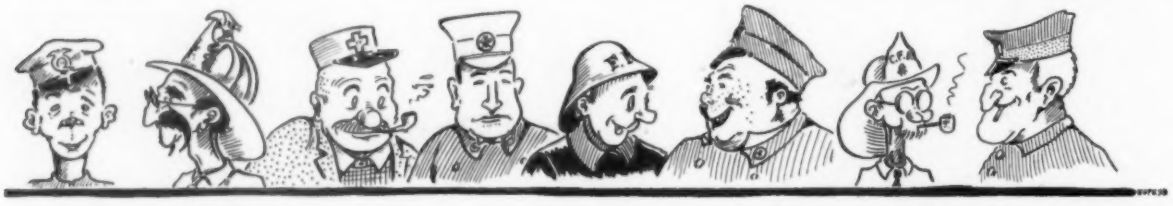
PERSONAL FIRE PREVENTION

Reports are constantly coming in as to how fire prevention week was observed. But perhaps the most novel way of commemorating the week was that followed by a fair and ambitious stenographer.

Riding down to work, a "secretary" remarked to another, "Did you observe Fire Prevention Week?"

"Sure I did," replied the fair one, "I got into the office earlier 'cause the boss was getting sore."

F. S.



This Is Intended to Show the Rookie Firemen Just What "Heads of the Department" Look Like. Many Types Have Been Omitted.

GOOD FOR SOMETHING

A large number of men had applied to join the fire department. Men of every description, shape and temperament were gathered in the office of the medical examiner for the preliminary physical examination before they were permitted to take the mental tests.

The chief sauntered in to see what type of men would enter the department. Just then the doctor rejected a tall individual with extra large feet.

"Wait a moment, doctor," hastily said the chief, "don't reject that man."

"He'll be of no use to you, chief."

"Yes he will doctor. We can use him to stamp out forest fires."

"But surely you didn't look for the escaping gas with a match?"

"Ah, but you don't understand. This was a safety match."

BED TIME STORY

Once upon a time, a skunk and her four little, pretty, cute baby skunks decided to take a walk. It was such a nice day, the sun was shining, and the golden yellow leaves were falling from the trees. Even the squirrels stopped to hoard nuts and to enjoy the beautiful sunshine.

And then a terrible dog rushed in to scare the pretty mama skunk and her family.

She quickly called her children to her and said, "Come, children, let us spray."

TIME TO START

The fire department had imported a new mechanic. Not only was he good at automobile repair work but he outshown such talent when he was in the company of the ladies. He owned a dilapidated car and on this particular night went riding with a twentieth century girl.

At the darkest point in the highway, farthest away from a sign of civilization, the car stalled. The mechanic went out to inspect it.

He looked up at the girl and said in his sweetest tone, "The engine's dead, dear, and I can't seem to find out what's the matter."

"All right," said the flapper in her haughtiest manner, "if you're kidding me I'm going to walk back, and if you're telling the truth, both of us will walk back, so I might as well get started."

"What! You failed that examination for lieutenant again?"

"Well what can you expect, they gave me the same examination again."

MORE ACTION

In order to raise money for the volunteer fire department, the organization had arranged a boxing card in a local auditorium.

The two heavily advertised boxers were putting up a terrible exhibition of extreme caution. They had danced around the ring for the two rounds without unleashing a punch. At the moment they were standing six feet apart in attitudes suggesting anything but combat. Suddenly there came a hoarse cry from the seats:

"Separate them!"

THE REASON WHY

The fire course had just started. The chief was on hand to welcome the large class of students and to extend to them the good wishes of the department. The men were in their places eager to humor the chief. The fire college instructor was eager to humor the men.

Looking around the room, he said, "What a lot of fine material for future officers of the department! As I look at you I wish that I myself were going to school. Do you know why I wish that I were back?"

There was a hoarse whisper from the rear of the room, "Cause you've forgotten all that you've ever learned."

The difference between love and marriage is the difference between a beautiful sunset and a three-alarm fire.

MEESTER! MYA HOUSE! COOM QUEEK! PLEES!
I DONT CARE IF YA ARE THE REGLAR DRIVER, I GOT HERE FIRST AND I'LL DRIVE HER!
NOT IF I KNOW IT! THAT'S MY JOB!
NEVER MIND, YOU GUYS! THEYVE SENT FOR HELP FROM OUTA TOWN!
F.D.

Courage for the Right Is Greater Than to Fight Fires

All petty quarrels should be settled at once and not be permitted to continue! And so two drivers, members of the volunteer fire department in Southboro, Mass., fought it out to see who had the right to drive the apparatus. It all started because Tony Bartolini's home was burning. Now Tony is a respectable citizen who had no desire to start a rumpus in the department, but how was he to know that his home would burn? And the firemen considered that it was more important to settle for all time, who had the right to drive the apparatus. The fire was of a secondary nature. So, while the firemen were fighting over their rights, it was necessary to call an outside department to extinguish the fire. The town hopes that the dispute was settled as it would be most embarrassing to have the incident repeated.

6 Patented Features

ERICK SIREN

Thorough Weather Protection
Erick Sirens do not clog up. Snow and ice cannot enter and stop sounding rotor. Completely protected and sheltered from outside influences.

Features That Prove Supremacy

Instant Alarm
Every telephone is a fire alarm station, permitting operator to sound alarm instantly, giving your fire department a chance to get the jump on the fire.

Universal Sound Projector
The Erick Sound Rotor and Deflector is built to instantly send a Fire Alarm.
Our Free Trial offer is made in all sincerity. We welcome your inquiry.

ERICK ELECTRIC SIREN CO.
STATE AND FILLMORE AVE., ST. PAUL, MINN.

A FIREMAN'S COURAGE
is never questioned

The boys who were compelled to wear masks during the war were not called cowards.

Is a Fireman's life less important than a Soldiers?

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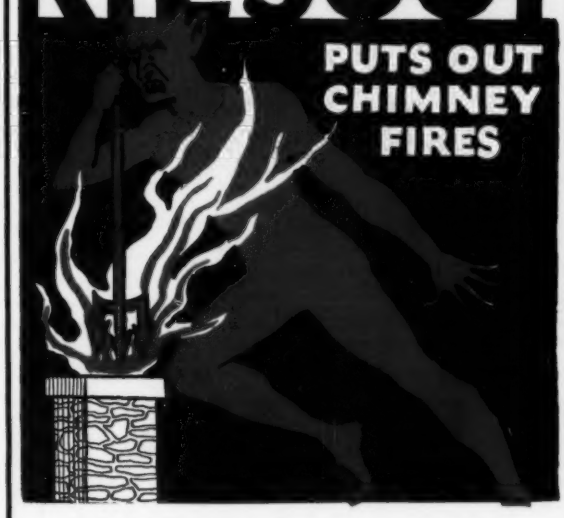

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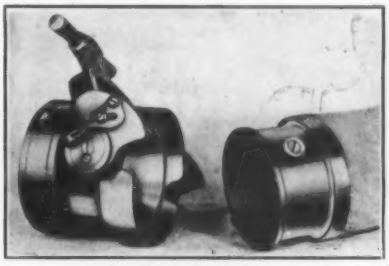

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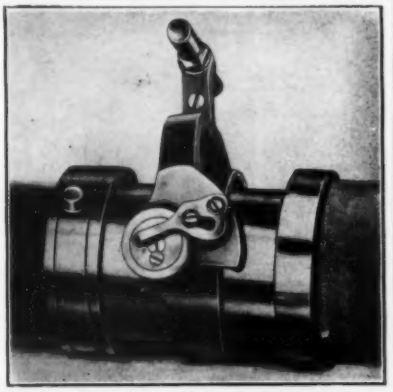

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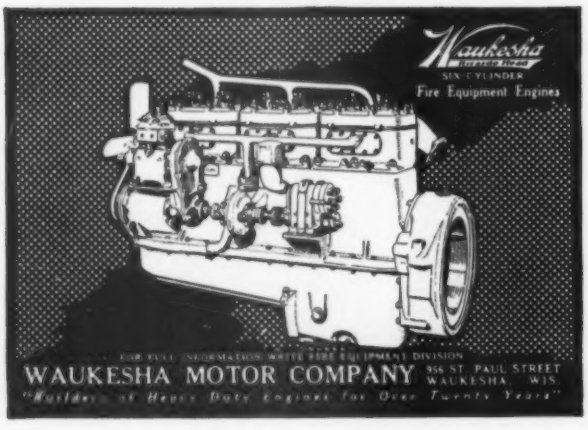

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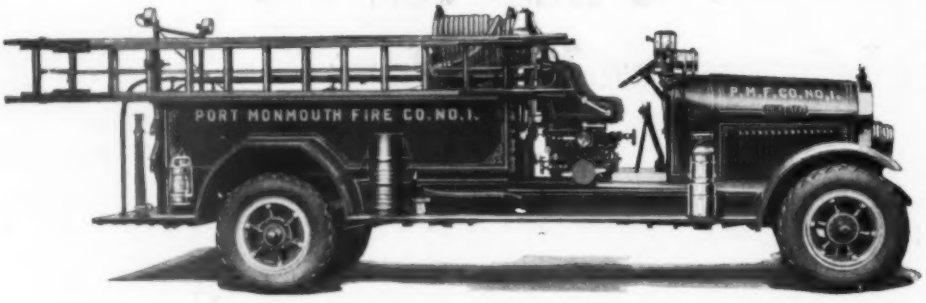

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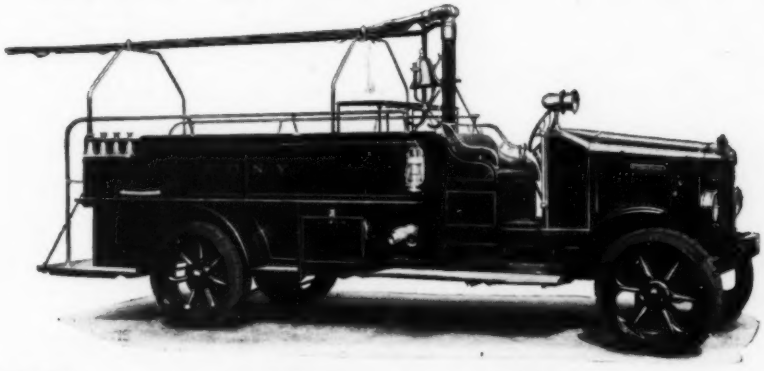

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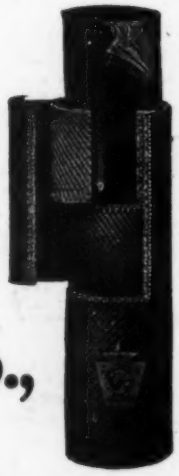

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